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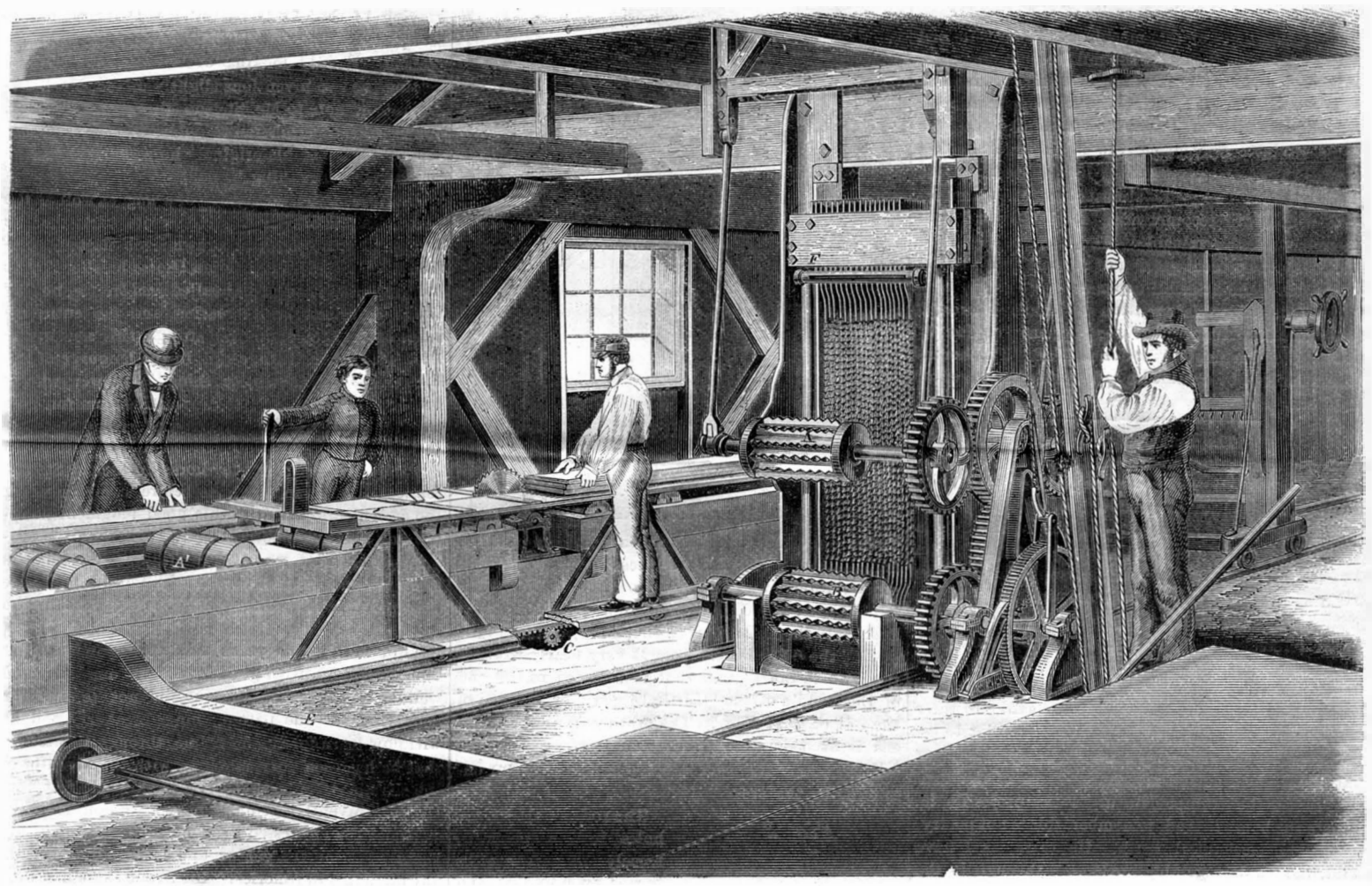
### Improved Sawmill Machinery.

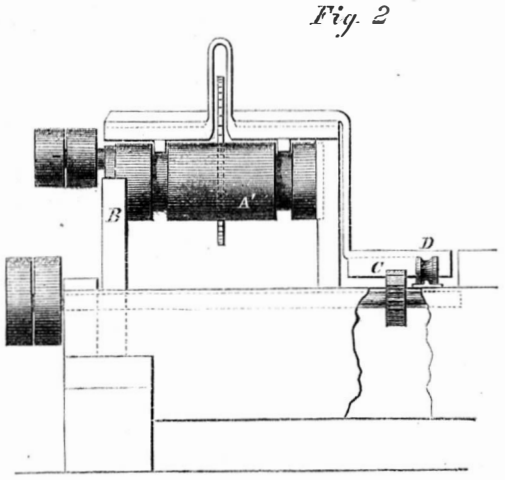
Although lumber is among the first demands of civilization, and machinery for its manufacture among the first inventions, improvements in this class of machinery have progressed more slowly than in almost any other. Cushing's improved feed works or gang saws and improved edging or saw table, recently patented, are said to be important, and, we believe, will be found beneficial to mill-owners. The feed works for gang saws consist in feeding the upper or pressure rolls, as well as the lower or log rolls, making them co-efficient in feeding the log into and through the saws, whereby sawyers are enabled to use fluted instead of the spiked or tooth rolls. This is accomplished without in any degree affecting the facility with which the upper or pressure rolls may adapt themselves to the various sizes and inequalities of logs—round as well as square—a simultaneous movement being imparted to all the rolls by one and the same motion of the rag wheel, under all circumstances. Gang saws have been found practically superior to any other method yet tried for reducing logs to lumber, both as regards the expenditure of power, simplicity and durability of machinery, economy in labor, and great saving of stock. In all these respects it is quite evident that the single or frame saw, the circular, and the muley are much inferior. The inventor claims greater facility in working all the parts of this machinery than under the old arrangements.

The advantages claimed are that the spikes or spurs, which reduce the size and which occasion great waste to logs and lumber, are wholly dispensed with. The log is prevented from moving further than the regular prescribed action of the rag wheel feeds it; and the frequent accidents to saws and machinery occasioned by the logs running into the saws, when burls or knots are passing over the rolls, as well as the rough, crooked, and unsound lumber, and loss of time by false strokes, under the old system, are thus avoided. The log rests upon the rolls with greater solidity when under the stroke of the saws, and is moved steadily under their action. The mechanical advantages of this improvement will present themselves at once to any experienced mill-man.



CUSHING'S IMPROVED SAWMILL MACHINERY.

Fig. 2




The improved edging or saw table consists principally in connecting with the table a platform upon which the men edging the lumber are carried back and forth. It is known that the labor of edging and splitting the deals, plank, scantling, and boards from gang saws heretofore has been the most laborious work in the mill. Even then the saws are often run upon short feed or stopped to enable the edgers to clear the lumber. This arrangement not only relieves the men from constant walking (amounting in some mills to nearly or quite a mile to every thousand feet sawed), but by increased facility of motion it also relieves them from the hurry which sometimes occasions great waste of lumber by careless adjustment on the table. This table will also prove of great advantage in planing mills where much lumber is split up with circular saws for various purposes of building. The platform and table may be worked by a boy, with a mash staff to tighten the

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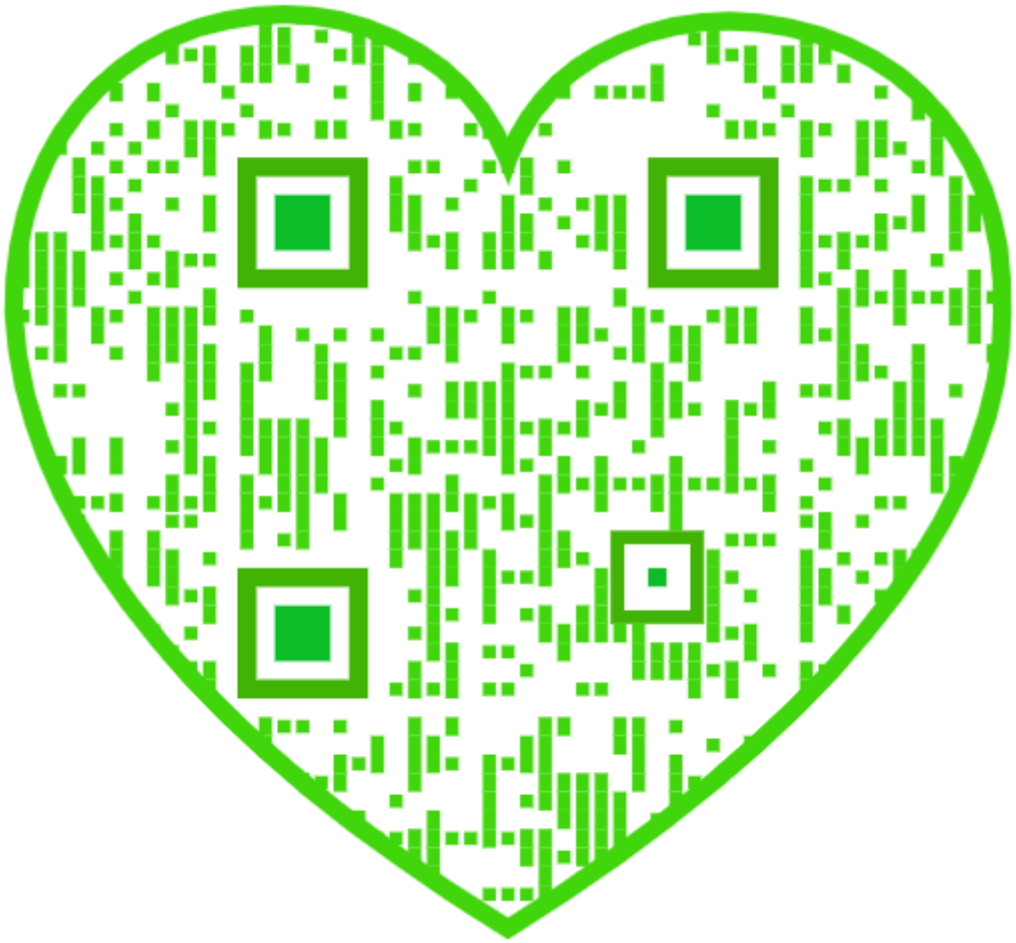


straight and cross belt, or by having friction pullies to reverse the motion, situated behind the table near the saw; or by the men who edge and split the lumber, simply by extending a light shipping-pole or rope along and over the table, out of the way and within their reach at all times.

In Fig. 2 we have a section of the edging table and its machinery. The table itself runs on the large friction rollers, A, which work on journal boxes set in the frame, B. The table and platform on which the workman stands are both driven by the rack and pinion seen at C, and the platform is supported by the small friction rollers, one of which is shown at D. The feed rolls, A, in Fig. 1 (perspective view), can be adjusted to suit any sized log, and the timber to be sawed is supported on the carriages, E, and taken as it issues on the further end by the head seen in the background. By attaching a block and fall to the upper part of the building, the feed rolls can be swung up out of the way entirely, and easy access obtained to the saws or other parts of the machinery. The width of the saws is regulated by iron guides or gages, F, inserted in a frame at the end of the saws; and the general arrangement of the mill is workmanlike, ingenious, and convenient, and reflects credit on the skill and enterprise of the inventor.

The advantages of this machinery may be summed up as follows:—It enables the mill to do more work, and it also saves a great deal of lumber, inasmuch as it economizes time, giving the men opportunity to adjust the timber to the saw more carefully upon the table, literally preventing the haste which makes waste. These improvements, having been in use during the last two years, almost constantly, summer and winter, are recommended to mill-owners and manufacturers as valuable. They may be easily attached to the present gearing of any mill, with slight alterations, and at small expense.

The patent for this invention was procured through the Scientific American Patent Agency, on Jan. 6, 1863, by A. Cushing, of St. Johns, N. B. Further information can be obtained by addressing the inventor as above.

### The Action of the Sun.

Every mechanical action on the earth's surface, every manifestation of power, organic or inorganic, vital and physical, is produced by the sun. His warmth keeps the sea liquid and the atmosphere a gas, and all the storms which agitate both are blown by the mechanical force of the sun. He lifts the river and the glaciers up the mountains, and thus the cataract and the avalanche shoot with an energy derived immediately from him. Thunder and lightning are also his transmuted strength. Every fire that burns and every flame that glows dispenses light and heat which originally belonged to the sun. In these days, unhappily, the news of battle is familiar to us, but every shock and every charge is an application or mis-application of the mechanical force of the sun. He blows the trumpet, he urges the projectile, he bursts the bomb! And, remember, this is not poetry, but rigid mechanical truth. He rears, as I have said, the whole vegetable world, and through it the animal; the lilies of the field are his workmanship, the verdure of the meadows, and the cattle upon a thousand hills. He forms the music, he urges the blood, he builds the brain. His fleetness is in the lion's foot; he springs in the panther, he soars in the eagle, he slides in the snake. He builds the forest and hews it down—the power which raises the tree and wields the axe being the same. The clover sprouts and blossoms, and the scythe of the mower swings by the operation of the same force. The sun digs the ore from our mines, he rolls the iron, he rivets the plates, he boils the water, he draws the train. He not only grows the cotton, but he spins the fiber and weaves the web. There is not a hammer raised, a wheel turned, or a shuttle thrown, that is not raised and turned and thrown by the sun. His energy is poured forth into space, but our world is a halting place where his energy is conditioned. Here the Proteus works his spells.—*Heat considered as a Mode of Motion, by Professor Tyndall.*

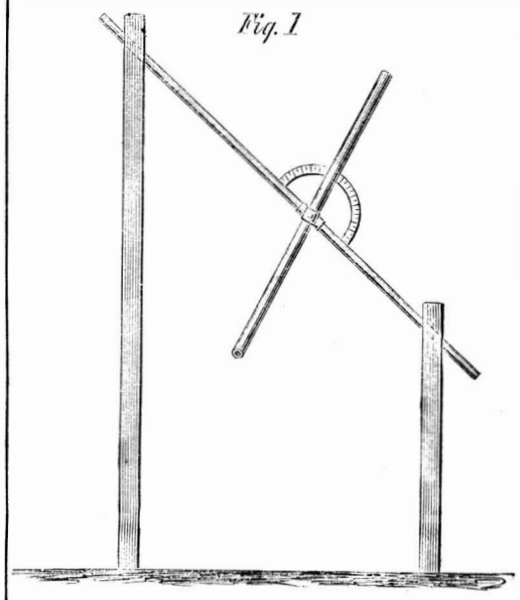
Scollay's Burial-case.—Mr. George B. Boyle has left this city recently to establish an agency in New Orleans for Dr. Scollay's deodorizing burial-case, which is extensively used now for preserving deceased persons intact for many weeks.

### A LESSON IN ASTRONOMY.

Ingenious mechanicians have constructed orreries, celestial globes, maps and numerous other instruments to aid us in obtaining a correct conception of the motions of the heavenly bodies; but for understanding the *apparent* motions, none of these artificial devices are so good as the heavens themselves—that great celestial globe which was fashioned by the Architect of the Universe, and which, suspended on its two pivots, rolls daily around us. We have only to watch the sun, the moon and the stars, to perceive that they are apparently set in a hollow shell, in the center of which we stand, and which is slowly rolling from the east to the west, over our heads and under our feet perpetually.

A very simple instrument, which any school-boy can construct, will aid materially in watching these motions of the heavenly bodies, and will illustrate the principle on which a large part of the astronomical observations are made. Let two posts be set in the ground, the second considerably shorter than the first and due south of it, so that a rod passing through holes in the upper ends of the posts may point exactly towards the north pole of the heavens.

*Fig. 1*



To find the position of the north pole we must first find that most brilliant and best known of all the constellations, and which is variably called "The Big Dipper," "Charles's Wain" or "The Great Bear"—in the Latin, *Ursa Major*. The two stars in the end of the "Big Dipper" point very nearly towards the "North Star," and that is situated in the end of the handle of the "Little Dipper" or the end of the tail of *Ursa Minor*. The north pole of the heavens is at this time about two degrees from the "North Star," its position being indicated in our engraving by the cross.

*Fig 2*

The rod should fit the holes in the posts so loosely that it can be turned upon its axis, and a tube is secured to it near the middle by a pivot so that the tube may be inclined at any angle with the rod.

Now if the tube is set at right angles with the rod and the rod is turned round upon its axis, the tube will describe a great circle in the heavens midway between the north and south pole. This circle is called the equinoctial. If the tube is pointed at any star and the rod is turned upon its axis, the tube will describe the circle in the heavens which the star will travel during the 24 hours.

When the tube is pointed towards a star, the angle of its variation from a right angle with the rod gives the declination of the star, either north or south, and this may be measured by a graduated arc attached to the rod.

If clockwork is connected with the rod so as to turn it from east to west upon its axis just half as fast as the hour hand of a clock, that is, once in 24 hours, and the tube is then pointed towards any star in the heavens, it will continue to point towards the same star during the whole of its circuit.

A telescope mounted in this way is said to be *equatorially* mounted; and in our large astronomical observatories many thousands of dollars are expended in mounting the great telescopes with sufficient solidity and delicacy to follow precisely the tracks of the stars.

The rod is parallel with the axis of the earth, and if the axis of the earth pointed to the center of the "North Star," as the star is larger than the earth, the rod would point at some part of the star. The distances of the stars are so great that the apparatus works practically the same as if the rod was right at the axis of the earth.

### Is a Patent Skate adapted to breaking Horses?

A correspondent, writing to *Goward's Real Estate Register*, gets off the following excellent story about our worthy cotemporary, Otis Brewer, the editor of the Boston *Cultivator*:—

"In the Scientific American for March 2, 1861, [Vol. IV. (new series) No. 9,] is a fine engraving of an apparatus, or gearing, for breaking ugly, fractious horses; and just below, on the same page, is an engraving of the 'Arctic skate,' invented and extensively manufactured in Uxbridge, Mass., by Bradford Stetson. Hastily looking over that page [136] and getting the two inventions slightly mixed, Mr. Brewer wrote a note to Mr. Stetson, the skate inventor, and requested permission to publish (in the *Cultivator*) the engraving of his original 'horse-breaker,' as he though it 'a nice thing.'

"Stetson, who is something of a wag, as well as the best mechanic in New England, wrote back that he thought Mr. Brewer had drawn a too hasty conclusion in calling his invention a 'horse-breaker!' The old article was sometimes called *head-breaker*, but, by the improvement of the gearing, and the entire absence of buckles, spurs and strings, this new invention, with much truth, could, in the language of Mr. Brewer, be called 'a n-*ice* thing!' Brewer, who is one of the best men alive, but as free from fun as a chicken from wool, did not fully understand Stetson's letter, and, after waiting a few months, wrote again for the engraving of the 'horse-breaker.' Stetson replied in the same vein as before, complimenting the agricultural editor on his good judgment in approving his invention, but again suggesting the propriety of examining the cut carefully, to see if it was truly the one he wanted, although he added, 'Those who have tried it pronounce it 'the biggest thing on ice!'

"For nearly two years this correspondence has been carried on, with good humor on one side, and wonder on the other, that he did not receive the engraving for the patent 'horse-breaker;' and he will now learn for the first time, through this letter, that he has been corresponding with the inventor of the 'Arctic skate.' Is it not a remarkable fact that all great inventive geniuses have a passion for fun? This fact has impressed itself on my mind for many years. Stetson is a genius, and is as well known as any mechanic in America. His Arctic skate has, during the past winter, superseded everything in the market. The skate is peculiarly formed, having no curls, loops or rings to catch sticks or strings to throw the wearer; it has no buckles, screws or strings to fasten with, but is made firm to the foot by two broad leather straps, with no visible ends.''

Destruction of the Tredegar Iron-works in Richmond, Va.—About eight days after the celebrated raid of Stoneman carried terror into the heart of the Virginia people, the Tredegar Iron-works took fire, and were burned to the ground. The fine machinery in the buildings was entirely ruined, and many of the workmen lost from three to five hundred dollars' worth of tools. In the works were sixteen new guns, which had just been cast and finished for the new gunboats recently constructed for the defense of Richmond. These guns were ready for mounting, wanting only the finishing of the touch-holes, and were rendered perfectly useless by the intense heat to which they were subjected. From the Tredegar Works the flames communicated to the woolen factory opposite, which was the largest in Virginia, and which was also reduced to ashes. The origin of the fire is involved in mystery.

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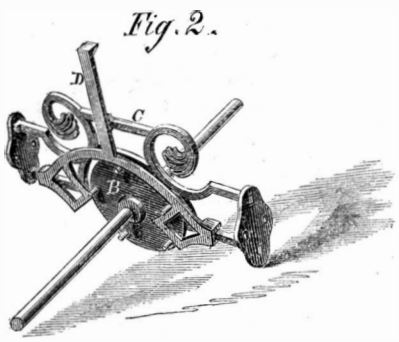
### Improved Hand Cultivator and Seed Planter.

This machine is designed to fill a place in horticulture between planting and hoeing by hand, and planting and cultivating with horses. Fig. 1, shows the arrangement of the machine. The frame, B, in front of the wheel is stationary and supports a corresponding frame, C, to which the tools are attached; it is made to slide up and down, and is held in its place with guides, and regulated to the proper depth by an adjusting apparatus composed of the perforated plate, D, pin and spring, E, and the rod, F, and pinion, C, working in a rack on the movable frame, C. This frame may be taken off by removing the guides. Similar frames with different kinds of tools may be attached for cultivating between rows of plants by hand. The quantity and size of the seed sown is regulated by adjustable cells in vibrating or sliding plates (the plates being also removable when desired), working in the seed box A. The seed passing through the tube, H, is covered by a share following the same, and packed if desired, by the wheel of the machine passing over it; if not desired to pack, the machine can be reversed and the seed planted after the wheel. The seed box, A, is held in its place by pins, and may be taken off when desired, leaving the cultivator unincumbered. By changing the frames any kind of garden tools adapted to the machine may be employed. The distance at which the seed are planted is regulated by the actuating device, I, seen at the right of the wheel; also shown on a larger scale in Fig. 2, in which B is a wheel on the driving shaft, with an odd number of pins or projections on the periphery, from one to any number desired. One permanent pin and two made to screw off on one side, with five permanent ones on the other side, will be found as convenient as any other plan. The frame, C, is fitted with rods for the sliding device, D to work on; a pin pressing against a double bevel joint on one end of the slide, pushes it forward, while another pin pressing the double bevel joint at the other end of the slide,

Fig. 2.

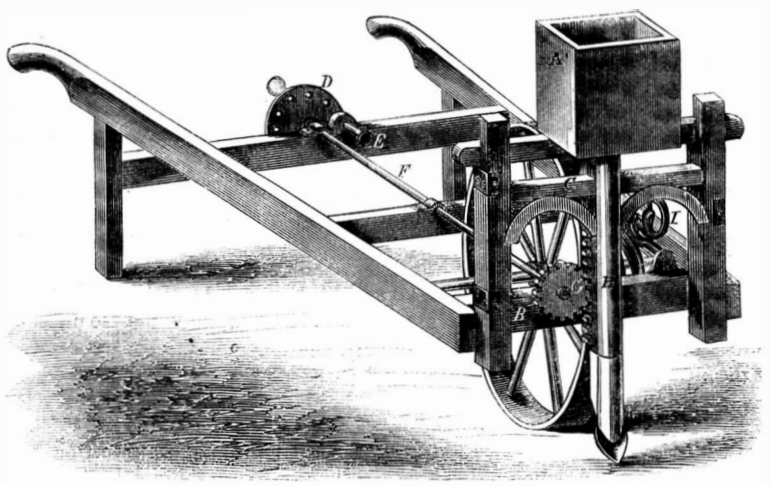



pushes it backwards. The slide, D, is held in its place with springs or screws, and can be applied to each side of the wheel. The distance at which the seed are planted is regulated by the number of pins on the wheel, B (Fig. 2), the size of the driving wheel and the orifices in the feed plates, enabling it to plant from one inch to four feet apart, a continuous stream, or even a single turnip, or larger seed at a time as wanted, such as beans or corn. These improvements in seed planters are also adapted to horse-power machines. This invention was patented by James K. Dugdale of Richmond, Ind., on May 13, 1862, and again on April 7, 1863; further information can be had by addressing him as above.

### A Splendid New Sleeping Car.

A new sleeping car, which cost $4,000, has lately been placed upon the Chicago & Rock Island Railroad It is 56 feet long—8 feet longer than the ordinary car. It contains three rooms. The main room is 38 feet long and contains twenty beds. At each end there is a saloon 9 feet long; both finished and furnished alike. Each saloon contains a sink, a washroom, with elegant marble-top stand and silver-plated fixtures, a sofa, an elegant mirror, coat-hooks and other accommodations. In the center of the roof, running the entire length, is an aperture 1 foot wide. Over this is raised a "steamboat roof," 2 feet high and 3 feet wide, with registers for ventilation; through this all the impure air (which has ever been the bane of sleeping cars) escapes. The upper berths are thus made as pleasant as the lower ones. To each upper berth there are two ventilators, one at each end, which the occupants can regulate at will.

Fig. 1




DUGDALE'S HAND CULTIVATOR AND SEED PLANTER.

The mattresses are all made of hair. The windows are filled with double sashes, so as to keep out dust, and are provided with brocade curtains instead of blinds. The car is splendidly lighted by lamps and reflectors in the roof, and carpeted with Brussels carpet throughout.

### LOCKWOOD'S PATENT SHOT-HOLE STOPPER.

It is well known to most persons that shot-holes

Fig. 1

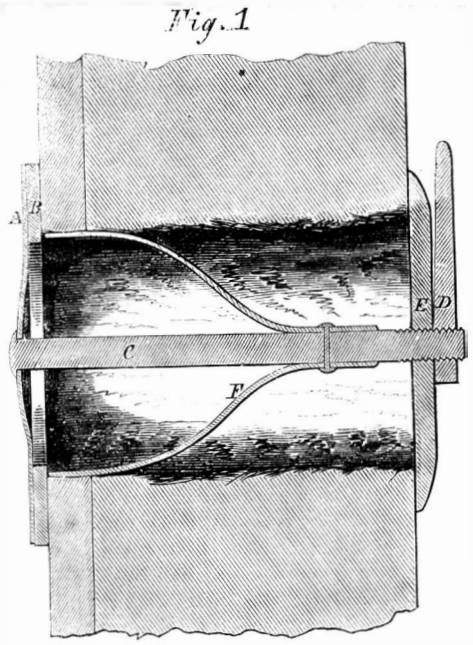
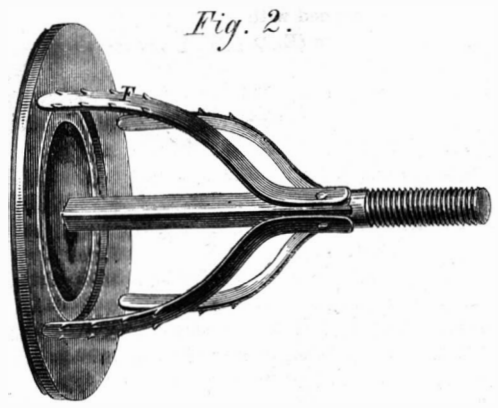



Fig. 2.




through the side of a ship, when below the water-line, greatly endanger the safety of the vessel and cargo, and that they are sometimes very difficult to stop on account of their ragged nature and irregular form. We illustrate herewith a device for stopping leaks of the kind in question; Fig. 1 shows a section of a vessel breached by a shot, and Fig. 2 is a perspective view of the invention. The metallic plate, A, is curved in a suitable manner to make it strong, and is faced with felt, B, or any elastic substance deemed best for the purpose. The stem, C, has a thread on the end, and is also provided with a nut, D, and washer, E. To the stem is riveted the springs, F; these serve to center the outside plate over the hole, so that it will seat itself properly and cover all parts of the aperture. These details comprise the invention. The operation is easily seen at a glance. The locality of the leak being ascertained, it is only necessary to dive down or reach it by other means (such as fastening the plate on the end of a boat-hook) and shove the plate over the leak. The springs center the apparatus properly, and the barbs on the same prevent it from slipping out before the nut is applied; it only remains to screw up the nut on the inside, and the leak is stopped. This is a very convenient and easily-adjusted device; it is much better than the ordinary wooden plugs used for the purpose, and is applicable to all classes of vessels, iron-clad and otherwise. It was patented by Edmund Lockwood, of Ulster, Pa., on Feb. 25, 1862. Any further information may be had by addressing him as above.

### Honor to the Discoverer of Photography.

The degree of LL.D. was, on the first of April last, conferred upon William H. Fox Talbot, Esq., in the University of Edinburgh, Scotland, upon which occasion Prof. Muirhead made the following address:—

VICE-CHANCELLOR:—I now present to you, as also accounted by the Senatus Academicus worthy to have conferred upon him the honorary degree of Doctor of Laws in this University, William Henry Fox Talbot, Esq., a Master of Arts of Cambridge and a Fellow of the Royal Society. It is not because of his political services that I present Mr. Talbot to your notice (though he, too, has had a seat in the Legislative Council of the nation), but because of his pre-eminence in literature and science, and the benefits his discoveries have conferred upon society. When I tell you, sir, that at Cambridge, Mr. Talbot was in mathematics a wrangler, and in classics the Chancellor's medalist, I but mention some of those early honors that were looked upon as earnests of his future triumphs. His subsequent career has not been behind his academic promise. Literature owns with gratitude her obligations to his philological inquiries. Oriental antiquities—and, in particular, the cuneiform inscriptions of Assyria—have been materially elucidated by his investigations. The transactions of our learned bodies and the medal awarded him by the Royal Society in 1838 bear witness to the value of his mathematical researches, especially in the field of optics; and chemistry has profited not a little by his experiments in connection with the spectrum analysis. But all these claims of his to grateful recognition pass into the shade when contrasted with that one which no man, sir, is better able to appreciate than you—his claim to our acknowledgments as the discoverer of the art of photography. Wedgewood and Davy, indeed, had early in the century some faint idea of the secret; the elder Niepce had experimented not entirely without success; Daguerre had announced that he had overcome the difficulties that had baffled his predecessors; but it was Mr. Talbot who first made known that method of photogenic operation which, however imperfect originally, has yet formed the basis of all that is valuable in the subsequent development of the art. The photography of the present day—far still, no doubt, from perfection, yet productive of exquisitely-beautiful results, and capable of application to innumerable industrial and æsthetical purposes——owes its existence to him. The discoveries of Herschel, Niepce de St. Victor, and Archer, much as they contributed to the advancement of the art, yet all were based upon the conclusions at which Mr. Talbot had arrived after years of patient scientific investigation and experiment. Niepce and Daguerre, who had attained results hardly less evanescent than the sunbeams that imprinted them, reaped substantial reward from a Government proud to claim for France the honor of their comparatively worthless discoveries. Mr. Talbot is left to obtain his acknowledgment in the gratitude of his countrymen, and the distinctions which we, and others who appreciate his labors and know their intrinsic value, have it in our power to bestow. Confer, then, upon him also, I pray you, sir, the honor for which I now present him, and of which his literary and scientific attainments, his philosophical and philological researches and the important services he has rendered to industrial and æsthetical art, make him eminently worthy.

The Vice-Chancellor (Sir D. Brewster) then, amid great applause, conferred the degree upon Mr. Talbot. The body of the hall was crowded with students, and the galleries were filled with ladies.

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## Correspondence

### A Creditable Piece of Engineering.

Messrs. Editors:—An attentive perusal of the Scientific American for some time past having convinced me that you desire to relate the practical, as well as discuss the theoretical value of mechanical science, I venture to enclose a short account of the tapping of the largest body of water ever operated upon in this State; the feat is regarded about here as "a very pretty piece of engineering." On the Ashland estate, in the vicinity of the town of Ashland, are located two large collieries; one, worked by Bancroft, Lewis, & Co., employing between four and five hundred hands, and the other, worked by Mr. Moody, almost as many. These collieries are situated on opposite sides of the Mahanoy creek, and the slopes in each have been sunk to the depth of 600 feet perpendicular. The mining engineer of the estate, seeing the great advantage to be derived from having the draining of both mines effected by one pump, proposed that an engine should be constructed of sufficient power to perform the required work. A direct-acting engine of 500 horse power was built by the firm of Pott & Vastine, of Pottsville, and erected at Bancroft's colliery, and having been found to work satisfactorily, the work of connecting the two collieries was commenced. This, as all engineers will understand, was a most difficult undertaking. The intervening distance between two slopes consisted partly of precipitous mountain side; and the slopes, following the pitch of the vein to the depth of 600 feet, were very steep and unfavorable for the use of instruments. A small gangway, merely large enough to allow the workmen room, was started at 500 feet below water-level in the eastern colliery, and driven forward with the intention of meeting a similar gangway from the western colliery; but as the miners advanced the influx of water became greater, and finally, owing to some accident to the pump, drove the men out and arose 300 feet in the slope, completely drowning out the lower part of the mine. The western gangway was then driven to within 60 feet of the flooded gangway, and preparations made for boring through the intervening mass of coal and slate. A strong battery of heavy timber was first erected to prevent the washing away of the coal by the immense pressure of the 300 feet of water about to be tapped. The drill was then put in operation, and with such nicety and skill had the gangways been driven, and so exactly was the direction of the drill determined, that the water was struck at the first attempt. Only from an actual inspection of the collieries can an idea be formed of the delicacy of leveling and measurement required to execute successfully such a work, where the smallest error in the direction or slope of the gangways would involve everything in inextricable confusion. Mr. H. H. Fisher, the engineer under whose direction this work was performed, has had for several years the entire control of the engineering department of the Ashland estate, upon which are situated some of the largest collieries in Schuylkill county. Visitor.

Pottsville, Pa., June 15, 1863.

[The undertaking seems to have been successfully accomplished, and the originator and director of the scheme is certainly entitled to great credit for the fortunate issue of it.—Eds.

### Steam on Canals.

Messrs. Editors:—From the Scientific American, No. 23, current volume, it appears that steam power on the Erie canal has not yet proved successful—horse-power being again in the ascendant. For the benefit of all persons interested I wish to say, through your paper, that I have just completed a device for propelling canal boats by steam; it requires but little room, it does not wash the bank, and yet it does the work. This propeller I am prepared to introduce on the following terms, namely, with twelve bushels of coal per twelve hours, to do the work of six horses; and for every additional horse-power, two bushels of coal per twelve hours, for any speed desired, attainable by power. This I guarantee at the above cost. I made a trip on the Miami canal on the 27th ult., running at the rate of seven and a half miles per hour. Will the above pay? Any person wanting steam power on the Erie canal, with the above conditions guaranteed, can have it by addressing—

A. E. Harding,
Middletown, Butler Co., Ohio.

### Will Vulcanized Rubber corrode Iron?

Messrs. Editors:—Recently in a common two-flue boiler belonging to the works I have charge of, we found it necessary to make some repairs, and we find that in the last sheet at the bottom, where the blow-off pipe is bolted on, the fire has burnt entirely through the sheet in a circle just outside the flange of the pipe, causing the feed to leak out faster than it could be pumped in. I conclude that it was the action of the sulphur in the vulcanized rubber packing which was between the flange and the boiler, that enabled the heat of the fire to burn so deeply at that particular spot, while other parts of the same sheet, as much exposed, were uninjured. How can this be accounted for? Civil Engineer.

Mount Vernon, Ohio, June 4, 1863.

[We do not exactly understand the disposition of the blow-off pipe. How could it be under the action of the fire? Vulcanized rubber packing does not stand much over 250° of heat, and we are puzzled to know why the joint did not burn out in a short time, as the heat of the fire must have far exceeded that temperature. Sulphuric acid may be formed by the action of heated water on the sulphur contained in the packing, but it must be necessarily very dilute, and does not affect the integrity of the iron. It is the common practice in all engineering establishments to use vulcanized rubber, to a greater or less extent, for making joints. We have never met with a case in our experience where iron was in the least injured by vulcanized rubber, and we cannot account for the occurrence on the theory advanced by our correspondent. Perhaps some of our readers may have observed a similar phenomenon (we cannot call it anything else), and will favor us with their experience.—Eds.

## RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list:—

*Lamp.*—This invention relates to an improvement in that class of lamps the wicks of which are supplied with oil or other burning material from an elevated fountain, or one which projects above the burner. This class of lamps possess an advantage over the ordinary lamps which have the burner attached to the top of the fountain for the reason that the former supply the flame with a uniform amount of burning material, and thereby cause a constant flame or one of uniform intensity so long as any burning material remains in the fountain, whereas, in the ordinary lamp the intensity of the flame diminishes as the level of the burning material in the fountain descends from the flame, as the supply of the former to the flame proportionally diminishes with its descent. The object of this invention is to obtain a lamp with an elevated fountain which will admit of a uniform supply of burning material to the wick or flame, and render an overflow impossible, so that volatile substances, such as the lighter grades of coal oil may be burned with perfect safety. J. H. Seaman, of Brooklyn (E. D.), N. Y., is the inventor of this improvement.

*Submarine Battery.*—This invention consists in extending the turret of a vessel or floating battery through its deck and bottom, in such a manner that a gun placed in the bottom of the turret can be fired below the water-line; it consists, also, in combining with the turret a mechanism for raising and lowering it, in addition to and entirely independent of the ordinary mechanism for producing a rotary motion of the same, in such a manner that one or more guns placed at the bottom of said turret can be fired under water in any desired direction; the invention consists, further, in the arrangement of water-tight cases which surround the guns or mortars and which are provided with springs in their back ends in such a manner that the entrance of water into the turret is effectually precluded, and the recoil of the guns or mortars is taken up entirely by the springs in the cases. F. A. De Mey, of Brooklyn, N. Y., is the inventor of this improvement.

*Printing Apparatus.*—This invention relates to a new and improved apparatus or device for printing direct from the type so as to avoid the labor of setting up the type, and also the subsequent manipulation of taking the impression therefrom. The invention is designed for printing letters, circulars, &c., either directly on ordinary paper or on transfer paper; and it is also designed for forming electrotype molds, the type in the latter case being pressed directly into wax, or other suitable plastic substance, on which, after it has received the impressions of the type, a coating of copper is deposited through the agency of a galvanic current. F. A. De Mey, of Brooklyn, N. Y., is the inventor of this apparatus.

*Rotary Engine.*—This invention consists in a novel construction of the stationary steam cylinder with its abutments and mode of combining them with the rotating cylinder or piston wheel to which the pistons are attached, whereby provision is made for dispensing to a great extent, if not wholly, with the use of packing and with working joints composed of surfaces perpendicular to the axis of rotation which are so difficult to keep steam-tight in rotary engines. It also consists in certain means of operating the pistons to bring them to positions to be operated upon by the steam, and into positions to pass the abutments of the stationary cylinder, as required; and in certain means of cutting off the steam from the pistons at various points in their revolution, to provide for working the steam more or less expansively. C. T. Boardman, of Bergen Point, N. J., is the inventor of this engine.

*Steam Radiator Connector.*—This invention consists in making the connection between the several sections of steam boilers, generators or radiators, by means of metallic thimbles having a right-hand screw-thread on one end and a left-hand screw-thread on the other end of its exterior; one end screwing into a hole with a corresponding internal thread in one section of the boiler generator or radiator, and the other into a hole with a corresponding internal thread in the adjacent section thereof; such thimbles constituting not only the means of connecting the several sections, but as durable communications between them, for the circulation of steam or water, and dispensing with the use of soft or perishable packing, such as cement, putty or india-rubber gaskets; it also consists in the construction of the interiors of such thimbles of square or other suitable form for the reception of a key of corresponding form by which to screw them into their places to make the connections. Charles Whittier, of Roxbury, Mass., is the inventor of this improvement.

## LITERARY NOTICE.

The Annual Directory of the City of New York. J. F. Trow, publisher, 50 Greene street, New York.

That an accurate compilation of the names of our citizens, their business and the places at which they transact it, is absolutely necessary to the daily duties of life, will be admitted by all. The value of such a catalogue may be well conceived by supposing it altogether suppressed and the community left to grope blindly after the information that is readily found in its pages. The City Directory, this year, completed by H. Wilson, is creditable to the canvassers and the editor of it, and doubtless contains as few mistakes as possible under the circumstances. Among the names of our own acquaintance we have not been able to detect any. The publisher apologizes for any inaccuracy by stating, in the preface, that the canvassers have had to encounter many difficulties when demanding names from persons, under the impression that they were enroiling for the draft, and he also instances other causes which conflicted with a thorough prosecution of the duties of the name-collectors. The cost of the production of the volume has been largely increased this year from obvious causes, but the publisher states it is still the cheapest book, considering its value, issued from the press.

Just as we go to press we are in receipt of a letter from a correspondent at Erie, Pa., announcing that oil had just been struck there at a depth of 500 feet.

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## THE FOURTEENTH ANNUAL REGATTA OF THE NEW YORK YACHT CLUB.

The friendly trial of speed, which has occurred every year but one since the organization of the yacht club, came off on the 11th instant. The entries were quite numerous, being sloops and schooners of varying tunnage. Their names are appended below. It seems as though some adverse fate ruled the winds and waves when regattas occur, for the inevitable calm that is always a part of the proceedings appeared on this occasion, and very nearly destroyed the hopes of the yachtmen. The breeze sprung up, however, at a later hour in the day. The advantages of the club as an organization, to our own city and country, should not be lost sight of. They are manifest in the splendid clipper ships built by our merchants, which are nothing but yachts in the finest sense of the word, and are at once the pride and boast of the world.

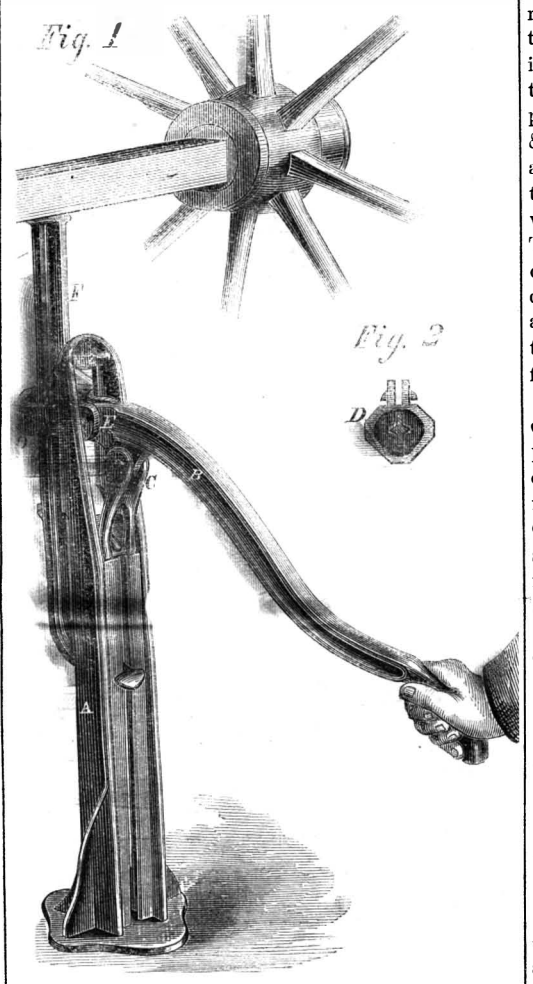
The race which took place on the 11th instant was of a character to excite mingled feelings, those of hope and fear predominating. It was a handicap race, or, in plain English, those yachts who could reach the stake-boat first were the best fellows. At about 11 A. M. the boats started in the following order, and the allowance of time can be noted:—*Mystery*, 59 tons, started at 10 o'clock and 15 minutes; *Fanny*, 48 tons, 10h. 25m.; *Alpha*, 23 tons, 10h. 34m.; *White Wing*, 53 tons, 10h. 41m.; *Nettie*, 110 tons, 10h. 43m.; *Favorita*, 138 tons, 10h. 48m.; *Gipsey*, 148 tons, 10h. 48m.; *Minnie*, 75 tons, 10h. 50m.; *Dawn*, 42 tons, 10h. 50m.; *Plover*, 40 tons, 10h. 57m.; *Nautilus* (not entered), 10h. 56m.; *Escort*, 34 tons, 10h. 58m.; *Annie*, 27 tons, 11h. 58m. The wind was dead ahead on the start, and the yachts dropped listlessly down the river, doing the best they could under the circumstances. The vessels made long stretches; and at 11 o'clock and 10 minutes the *Annie* put about on the starboard tack; at 11h. 30m. she was off Governor's Island. At 11h. 35m. the *Nettie* was off Bedloe's Island with every stitch of sail set; and at 11h. 55m. the *Alpha* was off Robbin's Reef Light. From the Battery down to the stake-boat off Robbin's Reef, there was no breeze worth speaking of, and at the stake-boat itself the vessels were almost becalmed. At this juncture a breeze and a shower both came together, and the yachts hastened on their way with increased speed. The following list exhibits the time made by each vessel to Robbin's Reef, and the order in which they reached it:—*Fanny*, 11h. 49m.; *Mystery*, 11h. 51m.; *Alpha*, 11h. 55m.; *White Wing*, nearly becalmed, 12m.; *Plover*, 12h. 7m.; *Nettie*, 12h. 8m.; *Minnie*, 12h. 12m.; *Dawn*, 12h. 20m.; *Favorita*, 12h. 25m.; *Annie*, 12h. 23m.; *Gipsey*, 12h. 29m.; *Escort* distanced. The run to the southwest spit materially changed the position of the vessels. The excursion steamboats all panted down to the buoy, and laid off awaiting the contestants. As they came down with swelling sails and bows cleaving the waves, they won the admiration of every person. The *Fanny* (sloop) was the first to reach the goal at 2h. 40m. P. M., and put about on her way home. The *Minnie* came cracking down on her little adversary just ten minutes behind, with the *Silvie* (withdrawn) close hauled after her. The excitement among the spectators became intense, and culminated as the *Plover*, the first of her class, reached the goal, put her helm up, and bore away in chase. After these came the *White Wing* at 2h. 54m., and the *Annie* at 3h. 10m. Then the excursion steamers toiled after the straining yachts and steered a straight course for the stake-boat off the Elysian Fields at Hoboken. They reached the home stake in the following order:—The *Minnie* (first-class prize) at 4h. 39m., the *Fanny* at 4h. 41m., and the *White Wing* at 4h. 51; the *Nettie* just one minute behind, and the *Plover* at 5h. 10m. This ended the regatta. No accident occurred to any one that we heard of.

### Vitrified Photographs.

Several specimens of vitrified photography upon transparent glass have been presented to the Paris Photographic Society by M. Maisson. In a communication upon the subject he states that he believes this kind of photography may be applied to the windows of apartments. The transparency, free from opacity, will, he believes, be an auxiliary which the glass-painter may advantageously employ. The method is as follows:—After taking a transparent positive from a negative, either by contact or by the ordinary method, it is covered with yellow ocher, and when dry exposed to the furnace in a muffle until it becomes a cherry-red color. When cold, the coating of yellow ocher is removed, and the picture is found vitrified.

## LANE'S PATENT CARRIAGE-JACK.

We herewith illustrate one of the best and most convenient implements for the purpose of jacking up wagons and carriages while the wheels are being washed, or having the axles on which they run repaired or greased. It is a very simple machine, as will be seen by referring to the engraving and description. The cast-iron column or post, A, has a long lever, B, working through the slotted head. This lever has a lug on the under side, to which is jointed the links, C; these are secured at the other end to the column. The head, D, is also jointed to the lever at E, and fits over the jack-head, F. Fig. 2




represents this appliance more fully. The operation of the jack is as follows:—The head is placed under the axle, as in the engraving, and the handle forced down the same as in pumping water. The loosely-fitted head, D, bites on the jack-head, F, and raises it up. When the handle is down, it folds closely up against the side of the supporting column, so that nothing is in the way to run against or throw the vehicle down. The links also are on their center of motion or perfectly upright, so that it requires no ratchet-teeth or palls of any sort to hold the jack up to its work, and it can never detach itself prematurely. Various heigths may be obtained by slipping the head, D, up or down on the jack-head, F, and the whole apparatus is very simple, cheaply-constructed, and well adapted to the purpose.

This invention was patented on Oct. 23, 1860, by Mr. W. J. Lane, of Washington, N. Y. Further particulars can be obtained by addressing the manufacturer, J. G. Lane (who has State rights for sale), at the same place.

An Accommodating Railroad.—On the Peoria, Oquawka, and Burlington Railroads, they run a combined "express and stock train," on which they carry hogs and humanity. One day last week a pig escaped from the cars at Gatesburgh, when about midway between this city and Elmwood, and forthwith the "express and stock train" was brought to a dead halt, for the purpose of capturing his swineship. An exciting chase of half an hour followed, in which the passengers were called to join, until "porky" was run down, returned to his fellows, and the "express and stock train" moved on its way. Great institution that "express and stock train!"—*Syracuse Union.*

## VALUABLE RECEIPTS.

Wash for Aphides.—Take half a pound of the strongest smoking tobacco, boil in it 2 quarts of water until it is reduced to 3 pints, then dilute it with 9 quarts of water in which soot has been previously mixed. Then add about a quarter of a peck of quicklime; stir it daily for eight days with a wisp of straw and strain it through a piece of canvas (not too thick); this will render the fluid so clear that when used it will pass through the finest watering-pot without choking up the "rose." This wash has been used for pelargoniums, verbenas, roses and calceolarias, without their being in the slightest degree injured by it.

Potting Herrings and such like Small Fish.—The following is the mode practiced in the Isle of Man for potting herrings, the fame of which is current in Europe:—Take 50 herrings, wash and clean them well, cut off the heads, tails and fins. Put them into a stewpan with 3 ounces of ground allspice, a tablespoonful of coarse salt and a little Cayenne pepper. The fish must be laid in layers, and the spice, &c., sprinkled upon them equally. A few bay leaves and anchovies are then interspersed among the fish—the latter improve the flavor greatly. Pour upon the whole a pint of vinegar mixed with a little water. Tie over them a clean bladder and bake in a slow oven. Skim off the oil; boil half a pint of port or claret wine with a small quantity of the liquor and add it to the fish. If required to be sent any distance it is better to cover the whole with some clarified butter.

Colored Flame Papers.—A very convenient mode of exhibiting the characteristic flames of metals is by prepared papers. The papers are prepared like gun-cotton, then soaked in the chlorates of the different metals, and afterwards thoroughly dried for use. Good paper for this purpose is prepared by soaking strips of filtering paper for about ten minutes in a mixture of 4 parts of oil of vitriol with 5 parts of strong nitric acid, by measure. The strips, when taken out of the acid, should be washed first with cold, and then with hot rain water, till the washings are no longer sour to the taste. The solutions of the metallic salts need not be very strong; but if they are warm, the strips of gun-paper will be more easily and completely saturated with them. Since some of the chlorates attract moisture from the air, it is better to dry the papers prepared with them before the fire previous to lighting them. They are shown to best advantage when a strip is loosely crumpled up into a pellet, lighted quickly at one corner and thrown up into the air against a dark back-ground. They leave, after burning, if properly prepared, no ashes whatever. Paper prepared with the salt of potash gives a flash of violet flame; that prepared with the soda salt, the characteristic yellow flame; and that with chlorate of baryta, a very beautiful green light. The chlorates of strontia, lithia and lime, when thus ignited, give intense colors. The violet-blue flame of copper is well seen, even with the chloride of that metal, while paper soaked in nitrate of potash shows the flame better than if the chlorate be used. Gun-paper prepared with a very weak solution of chloride or chlorate of thallium shows the characteristic sprig-green flame of that metal with great distinctness. Chlorate of baryta, being an article of commerce, may be employed for the preparation of the other chlorates, it being merely necessary to add to this salt in solution an exactly equivalent quantity of the sulphate or carbonate of the metal whose chlorate is desired. For instance, in order to make chlorate of copper, 15·1 grains of chlorate of baryta being dissolved in hot distilled water, a boiling solution containing 12·5 grains of pure crystallized sulphate of copper is to be added to it. Insoluble white sulphate of baryta falls, while the solution, filtered and evaporated, yields the new chlorate in crystals.

The *Journal de Horticulture de la Belgique* states that a powder made from the flowers of red camomile (*Pyrethrum roseum*) emits "an odor so strong and penetrating that it kills all the insects and the vermin for which, until now, no certain agent of destruction has been found.

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### Improved Turbine Wheel.

In some parts of the country it is inconvenient to employ steam power on account of the expense of fuel and the abundance of water power which furnishes an economical substitute for steam. We illustrate this week an improved turbine wheel which possesses some features worth noting, and those who are about constructing mills would do well to examine into its good qualities.

Fig. 1, is an elevation of the wheel, showing the casing partly in section; Fig. 2 is a plan. Water is applied simultaneously to the two opposite sides of the wheel through the double chute, A A' (Fig. 2), so that whether admitted in large or small quantities, it will act uniformly on both sides of the shaft, thus reducing the friction and wear, and causing the wheel to work with greater uniformity. The arrows indicate the course of the water. It is deflected upward by the scroll, I, and entering the wheel from below, its direct force is first applied to the lower ends of the buckets, C, and then to the short intermediate buckets, D; from whence it diverges upward and inward. The continued upward pressure caused by the gravity of the descending column is exerted against the oblique upper ends of the long buckets, C, until it has passed beyond the reach of the pressure of the descending column; after which it flows away with perfect freedom and without any disadvantageous reaction. The position of the buckets on the lower side of the wheel is such as to obtain the direct force of the water to the fullest extent, while at the upper side, where the greater obliquity of the buckets, C, causes them to approach nearer together, the absence of the intermediate buckets, D, affords space sufficient to admit of an unobstructed discharge. The upward convergence, of the hub, H, and casing, B, together with the depression of the outer edges of the buckets causes the centrifugal action to be made use of. The main shaft may constitute the spindle of the mill, being attached directly to the running stone; it rests on a lever, K, for regulating the stones in the customary manner by means of a screw, *a*. L represents the rack and pinion to regulate the gates, G. The wheel can be cheaply constructed and may be made to run at the proper speed for mill-stones with from 4½ to 12 feet head, without intermediate gearing. This wheel was patented through the Scientific American Patent Agency on Jan. 6, 1863; further particulars can be obtained by addressing Elias Dohner, at Lancaster, Pa.

*Fig. 1*

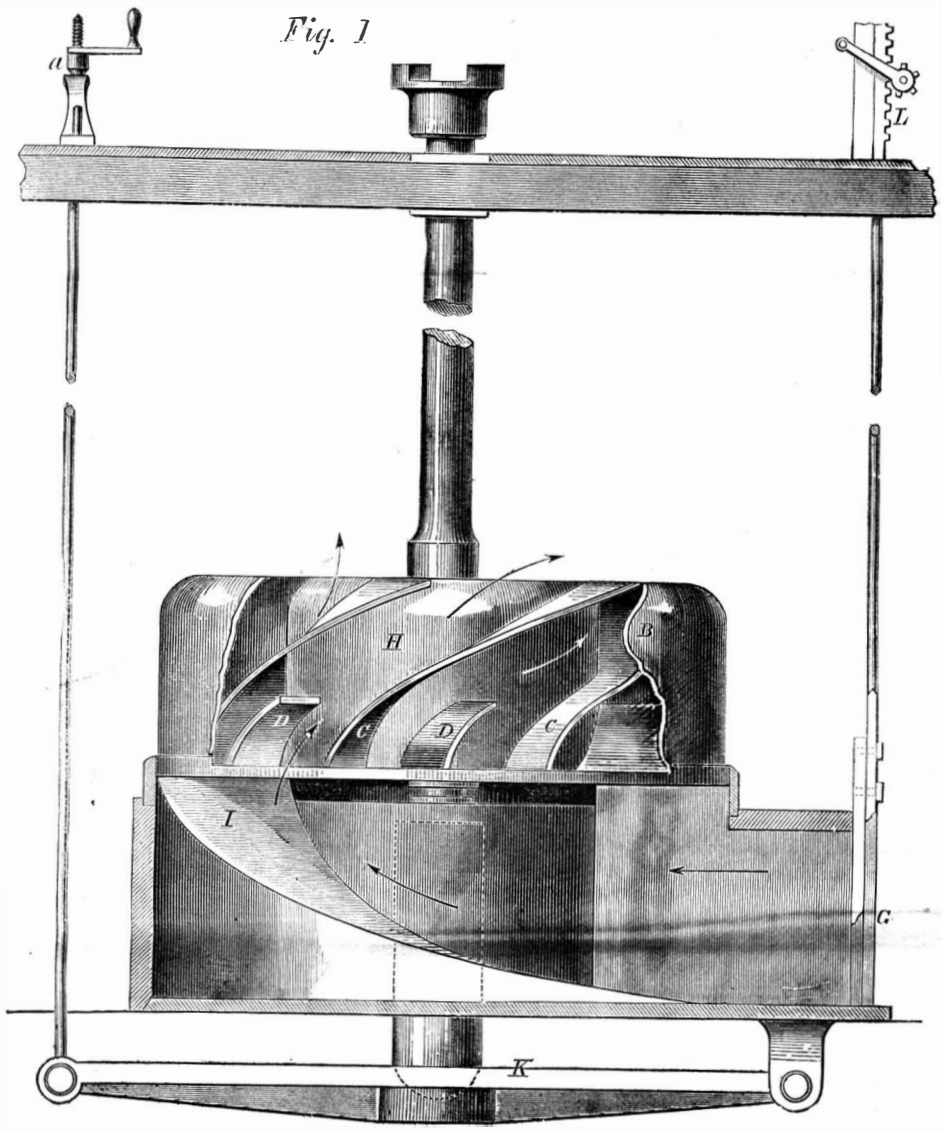
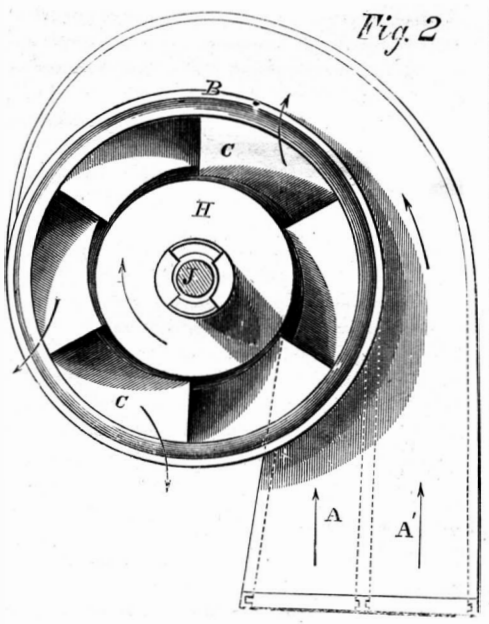



*Fig. 2*




**DOHNER & BRUCKART'S PATENT TURBINE WHEEL.**

### The Frog Market.

There is a frog market in Pittsburgh, and quite a large amount of business is done in it too. The frogs are brought from all parts of the adjacent country, and disposed of to restaurant-keepers and others, at prices which, considering that it costs nothing to raise them, and but little to catch them, must prove highly remunerative. Some are considerably larger than spring chickens, and are held at the lively price of twelve cents each. The regular price to restaurant-keepers is $8 a hundred, which is an increase of twenty-five per cent on the prices of last year. This seems a stiff figure for frogs, but we were assured that, if the present demand for them continues, they cannot be had at $10 a hundred, a week hence. They are brought to market alive, and, with their sage-looking heads and big, dreamy eyes, look as though they heard and understood everything passing around them.—*Pittsburgh Chronicle.*

[Frogs are very excellent eating, but we think that the chickens about Pittsburgh must be very small, or else the frogs are very large.—Eds.

A Nice Country.—Down on the Amazon are spiders with bodies two inches and legs seven inches long, that catch and suck birds; butterflies that are mistaken for humming-birds; green snakes just like a creeping plant, and a lovely coral snake with bands of black and vermilion separated by clear white rings; monkeys with white hair all over them; monkeys only seven inches long; and owl-faced apes, sleeping all day and lively all night.

### THE CAUSES OF FIRES.

We have noticed with much concern that people generally are extremely careless with combustible substances, or those that generate fire spontaneously. A large number of fires of "unknown origin" may be traced to the recklessness exhibited in the use of matches, in the tossing aside of ignited cigar-ends, in keeping materials together that develop heat by contact, such as oily waste, damp shavings, and carboys of chemicals, in fact the whole array of natural, artificial, or mechanical appliances for creating heat. That "fire is a good servant but a bad master" is a truism, the force of which is amply attested daily, and such being the case, it behooves all persons to be more watchful of their habits lest they transgress in this respect.

It is not an uncommon thing to see a young man go into a store with a fragment of a cigar in his mouth, which he presently throws on one side, regardless of where it may fall. That simple but foolish act may cost some men their fortunes and others their lives, and yet it is of almost daily occurrence. It was only a short time since that we had positive proof of the mischief of such a proceeding. Some person did precisely what we have narrated above—threw a cigar-end down in an office not very far distant, which alighted in a corner of the room on a raw edge of the cocoa-matting that covered the floor. This "stump" ignited the matting, which burned slowly for a long time until attention was called to it by the sense of smell. Had no person been at hand to discover the cause and extinguish it, there would doubtless have been another "mysterious" fire on record, as the furniture and other surroundings afforded excellent food for flames. In the cotton factories in New England several accidents have occurred from the spontaneous ignition of the greasy waste accumulated from time to time, and stringent penalties are now enforced, we believe, against such practices. Sawdust is a prolific source of danger when gathered in great quantities, as are all bodies incapable of being thoroughly ventilated. Perhaps cigar-smokers think to dispose of their rejected ends by casting them aside as convenience suits, but such a practice, although possibly harmless in forty-five cases, is in the other five unquestionably a source of disasters that ought not to occur. Rats are said to have caused conflagrations by carrying combustibles to their nests in the walls of houses, and children frequently obtain matches and do themselves lasting injury by sucking the prepared ends and by building fires in barns and other dangerous places. The careless use of combustible materials is greatly to be deprecated and ought to be stopped.

### NOW IS THE TIME TO FORM CLUBS.

With the present number another volume of this journal closes. We appeal to our friends in all sections of the country where mail facilities exist, to endeavor to form clubs for the coming year. We feel justified in asserting that no other journal in this country furnishes the same amount of useful reading, and especially at the extraordinarily low price at which it is furnished. Friends, send in your clubs; at least renew your on subscriptions promptly.

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VOL. VIII, NO. 26....[NEW SERIES.]....*Nineteenth Year.*

NEW YORK, SATURDAY, JUNE 27, 1863.


## TO OUR READERS.

Time, with unceasing tread, has brought us to the middle of another year, and with this number we conclude the eighth volume of the new series of the SCIENTIFIC AMERICAN. We earnestly hope that all our readers whose terms now expire will renew their subscriptions and forward the money at the earliest opportunity. Never before was there such a necessity for inventors, mechanics, manufacturers, and others maintaining an acquaintance with the inventions and discoveries of the day. The public mind is so active that improvement is heaped upon improvement with unexampled rapidity; and unless a person endeavors to keep "read up" in the published accounts of inventions and discoveries, he is sure to lose much and fall behind in useful acquirements.

The half-year just closed has, on the whole, been very prosperous for most manufacturers and mechanics; and invention has progressed with gigantic strides. The claims of no less than 1,729 new patents, granted by the Government Bureau at Washington, have been published in the columns of this volume; and the number of patents issued is a very fair test of the progress of useful discovery in any country. To this statement we can add another equally as reliable and gratifying, viz., that patentees have never been more generally successful in the sale of rights and in obtaining adequate remuneration for their inventions. This result is due in a great measure to a more just appreciation, on the part of patentees, of the necessity and value of having their inventions illustrated and brought to the notice of the public through the columns of the SCIENTIFIC AMERICAN. It is the only organ of American inventions and discoveries on our continent, and it is the source to which the public looks for reliable information relating to such subjects. As a matter of mere self-interest it behooves all who are interested in the progress of invention to consult its pages and carefully preserve their numbers for binding.

## HOPEFUL CHARACTER OF NEW INVENTIONS.

Many persons have supposed that most of the inventions which engross public attention at present are of a warlike character; hence they believe that improvements in the useful industrial arts are not so numerous as formerly. This is a mistaken notion. Of the one hundred and eighteen new inventions which are illustrated in the present volume of the SCIENTIFIC AMERICAN, only seven relate to purposes of warfare. Improved machines and devices relating to every branch of the industrial arts have been illustrated; among these are reapers, cultivators, cow-milkers, horse hay-forks, churns, carts, lamps, water-wheels, steam-engines, bridges, screw-jacks, wrenches, &c.; all of which afford evidence of the great variety of subjects to which the minds of our inventors have been directed. This is a most gratifying feature, because the prosperity of a country depends upon the progress of what are called "the peaceful industrial arts."

STEEL is hardened by being heated and then plunged into cold water. Brass is annealed (or softened) by the same process.

## PRESERVING EGGS.

Since the "hen-persuader" has failed in its object, and fowls cannot be prevailed upon to lay eggs all the year round, it is advisable for those who are fond of eggs to preserve them in seasons when they are plenty. However close and compact the shell of an egg may appear to be, it is nevertheless full of minute holes and pores invisible to the naked eye. The effect of these holes is apparent in the decrease of the moisture of the egg, and the subsequent change in the contents occasioned by contact with the air. "As full as an egg is of meat" is an old saying, but in all stale eggs there is a vacancy proportioned to the loss they have sustained by evaporation. If the end of a fresh egg be applied to the tongue it feels cold, but in an addled egg it feels warm, because the albumen of the egg being in contact with the shell absorbs heat from the tongue more rapidly than the air-bubble in the fresh egg. If the pores of the egg-shell be kept closed, the contents must be preserved intact, as no change can occur, and the object is to close this atmospheric connection in the cheapest and simplest manner. Any kind of varnish will answer the purpose in one sense, but will defeat it in another; as eggs, being particularly affected by strong scents, would lose their delicate flavor by the odor of the coating. A better plan would be to employ beef suet or mutton tallow, provided the egg can be kept in a cool place. The eggs should be dipped in the fat and afterward wiped off, as any excess of grease over that required to fill the pores, would become rancid. After this the egg should be set perpendicularly, with the small end uppermost, and placed in a box filled with bran and tightly covered up. If the egg is laid on its side, the yolk will adhere to the shell. Charcoal finely pulverized is a good substitute for bran, as it is a deodorizer and will absorb any disagreeable effect that might be perceived from the grease. Some dealers are said to practice dipping their eggs in dilute sulphuric acid. This is a feasible plan, chemically, as the action of the acid on the chalky shell would deposit sulphate of lime in the pores and thus close the connection. Strong vinegar would doubtless answer as well as vitriol. Eggs acquire an unpleasant odor by coming in contact with strong-smelling substances, such as mahogany sawdust, lime-water, and musty straw; and the greatest care should be observed in having all the materials used each excellent after its kind. It is a common practice to preserve eggs in lime, but they are at best doubtful when so kept, and cannot be praised. An egg is very much like a razor—either excellent or else good for nothing; and those who preserve eggs for market would do well to give the above-mentioned recipes a trial.

## FLAX RETTING.

The subject of American flax cultivation and the proper modes of preparing it for manufacturing purposes is still engaging much public attention. This is due to the great scarcity and high price of cotton, which far exceeds that at which fine flax sold when cotton was abundant. In former numbers of the SCIENTIFIC AMERICAN we presented information, at the proper season, relating to the preparation of the soil and the selecting and planting of flaxseed, and have nothing further to say upon these topics at present. We have been informed that more flax has been planted this year than at any previous period, as our farmers expect there will be a great demand for it. This expectation may be realized if care is bestowed upon securing the crops and treating the flax properly afterwards.

A very instructive little manual, on "Flax Culture and its Manufacture," has just been forwarded to us by its publisher—D. D. T. Moore, of the *Rural New-Yorker*, Rochester—in which are a number of essays and much useful information upon this subject. It contains several chapters by Mr. N. Goodsell, of Oswego county, N. Y., who has given much attention to the cultivation of flax, and who has visited some of the largest flax manufactories in Ireland and England. With respect to the time of pulling flax, he states that this should be done as soon as the stalks turn yellow, when the leaves fall freely from the stem, and when two-thirds of the balls have become brown. The stalks should be pulled, then made up into small bunches and set upon their butts to dry. The next operation is rippling—removing the seed—which is accomplished by thrashing with a flail, whipping the stalks upon stone flags, or drawing them through strong coarse hatchels.

The most important operation which follows is that of retting, which consists in treating the flax in such a manner that the gluten of the stalk in which the fiber is confined will be so decomposed as to permit the fibers to become loose and easily separated. There are two modes of retting; one by spreading the flax on grass exposed to the weather—called "dew rotting;" and the other by steeping it in water—called "water rotting." The former method is practiced in Kentucky in the treatment of hemp; the latter is the only mode practiced in Europe with flax. In no case can a good fiber be obtained by dew rotting; therefore those of our farmers who have planted flax this season should make preparations for water rotting it. In Belgium and Holland the flax is placed in ditches—the bundles being laid in inclined tiers with the butts downwards, and it is allowed to remain covered with soft water for about ten days. It is examined every day after it has been steeped five, so as to ascertain the progress of the process. When it is observed that the fibers draw out freely it is lifted immediately, as the fiber will be injured if it is over-retted. The bundles are next laid upon the grass, spread out and dried preparatory to the breaking operation.

In this treatise there is also a report of a committee of the New York State Agricultural Society on flax and its treatment, in which great stress is laid upon the proper mode of retting flax. It is correctly stated in this report that machinery cannot separate the fiber from the stalk without the retting process, and it says: "The only means of separating the fiber is to discover some solvent that has a stronger affinity for the cement than the fibers of the flax. Whoever shall be the first to discover such a solvent may exclaim, with Archimedes, '*Eureka!*' An ample reward in fame and in money awaits the discoverer, whoever he may be." We had supposed that such a solvent was generally known to exist in potash. It is a solvent of the gluten of flax, and does not act upon the fiber. Acetic acid is also a solvent, but it would be far too expensive to use. We have no doubt but flax could be retted in a superior manner in establishments erected for the purpose, in which it should be steeped in large cauldrons for one or two days in a cold dilute solution of potash, then heated up to about 212°, and suffered to remain at this temperature for several hours. The liquor should then be run off and the flax washed with hot water. The cauldrons for this method of retting flax should be heated by steam.

## LEARN TO FORGE YOUR OWN TOOLS.

Many mechanics have an idea that after they have mastered the more legitimate duties of the workshop, they have learned all that is necessary, and can undertake anything in their line of business. Machinists particularly are prone to this error—a common one, by the way—and think that a knowledge of fitting and turning, once acquired, makes up for all other deficiencies. In reality, the self-styled finished mechanic is, paradoxically, the unfinished one; for he who acknowledges his shortcomings, and tries to correct them by obtaining all the information he can, will acquire a more thorough knowledge of his profession. Comparatively few machinists are competent to dress their own tools, or, indeed, handle the blacksmith's hammer on any work. How many times such knowledge would have been invaluable, we leave individuals to decide from their own experience. A simple weld which they were unable to make, a faculty for dressing chisels without putting their own eyes in danger by striking the anvil instead of the tool, would assuredly have stood persons ignorant of such details in good service in time of need. Apprentices who go to the tool-dresser to have the edges of their chisels or other instruments renewed, will do well to observe the process and inform themselves of it, instead of throwing coal at the helpers or otherwise conducting themselves in an unseemly manner. Observation and experience are twins and inseparable, and no youth or indeed any adult can hope to attain eminence or proficiency without paying some respect to the matters herein alluded to.

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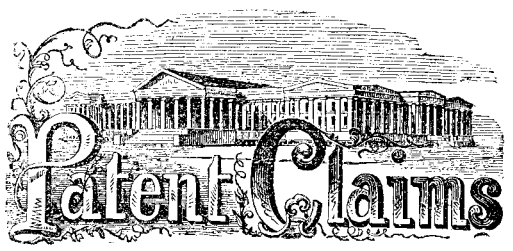


ISSUED FROM THE UNITED STATES PATENT OFFICE

FOR THE WEEK ENDING JUNE 9, 1863.

*Reported Officially for the Scientific American.*

*** Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

38,800.—Device attached to Railroad Cars for facilitating the Passage of Trains up Steep Gradients or Inclining Planes.—Thomas Agudio, Turin, Italy:

I claim the apparatus, constructed and operating substantially as herein described, to be used as an attachment to the front of a train for the purpose of facilitating its passage along a steeper gradient than the ordinary locomotive engine is competent for.

38,801.—Car Coupling.—T. H. Arnold, Arlington, Ill.:

I claim the pendent swinging plates, C D, in connection with the bolts, E F, and links or shackles, G, all arranged in connection with the draw-head, A A, to operate as and for the purpose set forth.

I further claim the projections, f f, in the draw-heads, A A, in combination with the plates, C D, bolts, E F, and links or shackles, G, for the purpose set forth.

[This invention relates to an improved car-coupling of that class which are commonly termed self-coupling, and it consists in the employment or use in each-head of a link or shackle, and two pendent swinging plates and two bolts arranged in such a manner that the link of one draw-head will as it enters the draw-head of an adjoining car, couple with it, and due provision made to protect the links of the draw-heads against bending, in case of the parts not being in proper position to admit of the links coupling when entering the draw-heads.]

38,802.—Weather Strips.—B. F. Averill, Dunkirk, N. Y.:

I claim, first, The two inclined faces, M N, so arranged on the door frame as to operate the weather strip, C, through the aid of the piece, K, and connecting parts substantially in the manner herein set forth.

Second, I claim the arrangement of the separately adjustable pins, G G, in the holes, g g', &c., in the connected levers, E, and the slots, C2 C2, in the sliding weather strip, C, or its equivalent so as to vary the range of motion of the weather strip, C, at either end or both ends substantially in the manner and for the purpose herein shown.

Third, I claim the employment of the inclined metallic surface, P, on the door sill in combination with a sliding weather strip, C, on the door and with supporting means adapted to act rapidly at the moment of the closing of the door, and opening of the same, substantially as represented by M N K, and E E, for the purpose herein explained.

Fourth, I claim the scraper, Q q, pivot, R, and moving pin, T', arranged as represented relatively to each other and to the door-frame, A, door, B, and the working parts of the weather strip mechanism, substantially as and for the purpose represented.

38,803.—Plow.—James R. Beggs, New Albany, Ind. Ante-dated April 18, 1863:

I claim the combination of the beam, A, mold-board, B, standard, C, brace, D, and heel-piece, E, all arranged as and for the purpose herein set forth.

38,804.—Horseshoe Machine.—Uriah Billings, New Bedford, Mass.:

I claim the combination of the griper, D, and its operative mechanism with the wheel, W, the blank former, C, the actuator, M, and the swaging rollers.

I also claim the combination of the guide rails, H H, and the abutment, I, with the wheel, M, the former, C, and the swaging rollers or mechanism arranged and so as to operate together substantially as specified.

38,805.—Rotary Engine.—C. T. Boardman, Bergen Point, N. J.:

I claim, first, The cylinder, A, constructed to receive only the lower portion of the piston wheel and having its abutments, G G', combined with it and the piston wheel by means of hinged clamps, H H, which also serve to confine the said wheel to its place in the cylinder substantially as herein specified.

Second, The adjustable plates, h h, and anti-friction rollers, g g, applied in combination with the cylinder, and with the groove, i, in the piston-wheel, substantially as and for the purpose herein described.

Third, The combination with the swinging pistons, C C, of the bell-cranks, K K, furnished with studs, q r, the bar, P, and the projections, s t, on the cylinder, the whole arranged substantially as herein described to operate the pistons,

Fourth, Making the abutments, G G', of taper form and so fitting them between the cylinder and the piston wheel that they may be kept tight by the pressure of steam substantially as herein described.

Fifth, The combination of the variable cut-off cams, T T, with the cut-off valve by means of a system of levers, S and U, combined to operate substantially as and for the purpose herein set forth.

38,806.—Sewing-machine Stitch.—C. F. Bosworth, New Haven, Conn.:

I claim a seam or succession of stitches having the distinguishing characteristic above set forth formed in and uniting two pieces of braid or other material, said seam being chiefly useful in uniting braids for hats and like fabrics.

38,807.—Sewing Machine.—C. F. Bosworth, New Haven, Conn.:

I claim the combination of a sewing machine needle, with a roller or its equivalent and with a feed apparatus or mechanism, when the needle and roller are so arranged relatively to each other that braid can be sewed by a needle piercing and leaving the braid or other material on the same side thereof, the combination being substantially such as described.

I also claim in combination, a sewing-machine needle, a roller or its equivalent around which braid can be bent and a needle guide, the three being arranged and acting in combination substantially as specified.

And finally I claim a vibrating sewing-machine needle, or a sewing-machine needle caused to vibrate by proper mechanism substantially as specified, in combination with a roller around which braid can be bent or turned and any appropriate feed apparatus, the mode of operation of the combination being substantially such as set forth.

38,808.—Journal Box.—J. Mosher Brower, Syracuse, N. Y. Ante-dated Feb. 28, 1862:

I claim the combination of the iron shell or case, A, the brass rib formed of a longitudinal central portion, B, and lateral arms, B', and the soft metal filling, C, filling cavities in the said rib and locking the whole firmly together, all as hereinbefore explained and for the objects stated.

[This journal box is formed of an iron shell, a brass rib, and a filling of soft metal composition, the latter serving to secure the brass rib in position so that both rib and filling can readily be replaced when worn.]

38,809.—Radiator.—Levi Burnell, Milwaukee, Wis.:

I claim the arrangement of the deflector, C, and register, E, with each other and with the pipe, A, and space, D, in the manner herein shown and described.

38,810.—Cap for Jars, Cans, &c.—John K. Chase, New York City:

I claim, first, The mode substantially as described, of constructing caps for the purposes mentioned.

Second, The combination with a cap for the purposes enumerated, whether constructed substantially as described or not, of a knob or projection, for facilitating the tightening or loosening of the cap, as set forth.

Third, The combination of a cap and nozzle, whether constructed substantially as described or not, with the spouts of oil cans or molasses cups, or the lips of bottles and other similar articles, substantially as set forth.

38,811.—Apparatus for raising Water.—Nathaniel Colver' Chicago, Ill.:

I claim the arrangement of the screw, h h, within a conduit, c2 d2, whose inlet is placed in a plane lower than that of its exit passage, when applied for the purpose of displacing and drawing off stagnant and sluggish waters and causing an artificial inflow of pure water, substantially in the manner and for the purposes herein set forth and described.

38,812.—Steam Boiler.—Wellsly W. Crane, Auburn, N. Y.:

I claim the cylinder, D, or its equivalent, in combination with the cylinder, C, and fire-box, B, for the purposes herein set forth.

38,813.—Manufacture of Balls, Springs, &c.—Abbot R. Davis, Cambridge, Mass.:

I claim compressing the sponge into any desired form and drying or baking it in the manner substantially as set forth.

I also claim covering the sponge when so treated with india-rubber or other waterproof material, in the manner and for the purpose substantially as described.

38,814.—Submarine Revolving Battery for War Vessels.—F. A. De Mey, Brooklyn, N. Y.:

I claim, first, Extending the turret of a vessel or floating battery through the deck and bottom of said vessel in the manner and for the purpose substantially as herein shown and described.

Second, Combining with the said turret so extending through the bottom of the vessel a mechanism for raising and lowering in addition to and independent of the ordinary mechanism for revolving said turret, substantially as and for the purpose specified.

38,815.—Printing Apparatus.—F. A. De Mey, New York City (now of Brooklyn, N. Y.):

I claim, first, The revolving type wheel, R, when operated or turned through the medium of the toothed rim, V, wheel, t, and hand-wheel, X, and used in combination with the notched annular plate, T, and the stop, U, and with or without the stop, Y, and notches, u, in the periphery of the wheel, X.

Second, The lever, M, connected with the bar, J, as shown in combination with the toothed arm, I, attached to the feed-table, H, and the lever, N, arranged in relation with the lever, M, to operate as and for the purpose herein set forth.

Third, The treadle, O, connected with the lever, P, as shown, in connection with the plate, B', and lever, C', when said parts are used in combination with the type-wheel, R, for the purpose specified.

Fourth, The combination of the levers, M N P, treadle, O, bar, J, toothed arm, I, plate, B', lever, C', and type-wheel, R, all arranged for joint operation as and for the purpose herein set forth.

38,816.—Reel for drying Flour.—W. H. Dole & D. R. Fraser, Chicago, Ill.:

We claim, first, Drying flour and other similar ground substances by means of reels of the character substantially as described; and hot air circulated through such anti-metallic reels, for the purpose set forth.

Second, The employment of cones or their equivalents in connection with flour-drying reels in the manner substantially as and for the purpose described.

38,817.—Pin-cushion.—Timothy Earl, Valley Falls, R. I.:

I claim as an improved article of manufacture a pin-cushion composed of two disks, A A, of metal, or other suitable hard substance, connected together by a perforated band, B, of the same material, to form a case which is filled with wool or other suitable substance, c, to keep the pins which pass through the perforations in the band, B, in proper position as herein set forth,

[This invention consists in constructing a pin-cushion of two concavo convex plates or disks of any suitable metal or hard material connected together by a narrow band of the same substance, perforated with holes of such diameter to admit of pins passing through, the interior of the case being stuffed with wool or other suitable material to keep the pins in proper place.]

38,818.—Machine for making Railroad, Boat and other Spikes.—Morrison Foster, Cleveland, Ohio:

I claim the heading and pointing of the spike or other article one or both, during the revolution of the jaws, substantially as described.

I also claim the use of the bar or roller or its equivalent, for bending the prodruding portion of the blank, to form the head upon one side of the spike, substantially as described.

I also claim so arranging the header that it shall travel in the same radial plane with and upon the jaws, in order to perform its functions without disturbance of any of the other parts of the machine substantially as described.

I also claim the curved guides, P, in combination with the header, as and for the purpose substantially as described.

I also claim in combination with the curved guides, P, and the header, the guide, u, for the header to play through and to prevent latteral motion thereof, substantially as described.

I also claim combining the pointing rolls with the revolving jaws and header, in such manner that the points of the spikes shall be formed during the rotation or movement of the jaws and header, substantially in the manner and for the purpose described.

I also claim the inner revolving shaft, F, with its outer stationary shaft, each carrying its respective parts as described and represented, so that the outer shaft may take the strain of the heading and pointing operation without springing or straining the inner shaft, substantially as described.

38,819.—Car Coupling.—Henry C. Glasgow, Chicago, Ill.: Ante-dated Dec. 25, 1862:

I claim, first, The combination and arrangement of the abutment, A, the arm, B, the pin, C, the bar, D, and the ribs, e, constructed and operating substantially as and for the purpose set forth.

Second, I claim the combination and arrangement of the abutment, A, the rods, c, the plate, f, the rods, a G, the plate, J, the cups, H, and the block, M, all constructed and operating substantially as and for the purposes delineated and set forth.

38,820.—Cap for Fruit Jars.—Ralph Gray & Robert Hemingray, Covington, Ky.:

We claim, in the construction of sheet metal screw tops for jars, the combination of the helical wire, d, the annular space, e, and the lugs, f, substantially as herein shown and described,

38,821.—Frame for forming Hoop Skirts.—James F. J. Gunning, New York City:

I claim, first, The arrangement of one or more reels, D, in the interior of the frame, A, constructed and operating in the manner and for the purpose substantially as shown and described.

Second, The arrangement of the adjustable or moveable cross-bar, E, or its equivalent in the bottom of the form, A, as and for the purpose specified.

[This invention consists in arranging one or more reels on which the skirt wire is wound, in the interior of the frame on which the skirt is formed in such a manner that the space is saved which said reel or reels would occupy either above or beside the form and that the wire is placed in the most convenient place for the operator; the invention consists also in the arrangement of an adjustable bottom in the form or frame in such a manner that by unshipping the bottom the reel or reels can conveniently be taken out or put in.]

38,822.—Composition for Lubricating.—Alexander Hamill, Baltimore, Md.:

I claim the mixture in suitable proportions of pulverized soap-stone with crude petroleum, coal-oil, or any of its products, to form a lubricator for machinery.

38,823.—Mode of ornamenting Lamp Stands, &c.—Hiram W. Hayden, Waterbury, Conn.:

I claim the method herein specified of ornamenting a lamp stand or similar article by interrupted parallel lines, engraved upon the surface of such article, by a tool in contact with such surface, while the said article is being rotated as specified.

38,824.—Batteries of War Ships and other Floating Structures.—Charles W. S. Heaton, Belleville, Ill.:

I claim constructing batteries of war vessels and other like structures in zig-zag bastions in the manner and for the purpose substantially as set forth.

38,825.—Compound Oil for Burning and Lubricating.—Wm. G. Hermance, West Sandlake, N. Y.:

I claim the compound produced by the admixture of fish or other animal or vegetable oil with mineral oil substantially in the proportions herein described.

38,826.—Lamp Top.—Frederick Hewitt, Newark, N. J.:

I claim, first, The fastening together of the two specific parts of lamp, viz: the top or fluid receptacle, by means of corresponding wedged shape pieces substantially as described.

Second, I claim as new the combination of the parts, A C C' B, and D D', substantially in the manner and for the purposes described, all being parts of a lamp as herein set forth.

38,827.—Folding Bedstead.—John Housiaux, Washington City, D. C.:

I claim a bedstead composed of two sections, each section being made up of three pieces hinged together as described, and the two sections united at diagonal corners, substantially in the manner set forth, so that the two sections may, when taken apart, be folded up as shown and described.

38,828.—Stove.—G. G. Hunt, Quincy, Ill.:

I claim, first, The chamber, I, provided with the internal air-tubes, J', in combination with the fire-pot, E, flues or vertical tubes, F, communicating with the annular chamber, G, and smoke-pipe, H, all arranged to operate as and for the purpose herein set forth.

Second, The annular pendent flange, a, in the central opening of the annular chamber, G, when placed relatively with the upper ends of the tubes, J', to operate as and for the purpose herein set forth.

[The object of this invention is to obtain a stove which will burn all the inflammable gases, smoke, &c., evolved by imperfect combustion, thereby economizing in fuel, and, at the same time, obviating the difficulty hitherto caused by the flues of the stove becoming clogged or choked up with soot. The invention is more especially designed for the burning of bituminous coal, but anthracite coal may be used, and a saving in that also effected.]

38,829.—Skate.—A. W. Johnson, Auburn, N. Y.:

I claim the employment of the double-screwed knee, D, made small at its lower part and enlarged at its upper part, in combination with the runner screw, C, and the foot-stand screw, E, as herein shown and described; so that the said knee, while it presents at its upper end a large and firm bearing surface or support for the foot-stand, will also present a large interior nut or screw surface for the reception of the foot-stand screw, while in its lower end the said knee will receive the runner screw, and all the parts will be firmly bound together, as set forth.

[This invention relates to an improved made of attaching the runner of the skate to the footstand thereof, and consists in having the upper edge of the runner, at the proper points, provided with screws, on which the posts or knees are screwed, the latter serving as supports for the footstand, and being firmly secured in position by screws which pass through the foot stand and into the posts or knees.]

38,830.—Bush for Bungs.—William Kenyon and Alexander Menzies, New York City:

We claim the metallic flanged bush, b, secured to the stave, as set forth, and receiving the bung, as specified.

38,831.—Gun Carriage.—James B. Lyons, Litchfield, Conn.:

I claim, first, The arrangement of the hand-levers, o o, and their cams, l l, with the axle levers, i i, operating substantially as described.

Second, I claim the arrangement of the combined friction clamp, m m, and wedges, P P, to check and hold the recoil and prevent the rebound of the gun, substantially as set forth.

Third, The combination of the friction clamp with the gun carriage by means of the adjustable chains, t t, whereby the distance provided for the recoil may be accurately and uniformly provided for, as set forth.

38,832.—Hoop Skirts.—Jonathan Mann, Waltham, Mass., and Alexander McDonald, Cambridge, Mass.:

We claim the improved collapsible hoop skirt, made substantially as described, viz.: with each of its hoops lapped at its ends and having one or more spring nippers or mechanical equivalents applied to one or more of them, so as to operate as specified, each half of the number of the ends of the hoops being connected by a band, as specified.

And we also claim the combination and arrangement of rings with the hoop skirts, when made with the ends of its hoops to overlap one another, and such hoops are provided with one or more spring nippers applied to one or more of them, in the manner and for the purpose as specified.

38,833.—Composition for forming Cement, Tiles, Pipes, Pavements, Building Blocks, &c.—Isaac Marsh, Jr., of Milton, Pa., and Griggs Marsh, of Lewisburg, Pa.:

We claim, first, An improved cement, as specified, in the manner and for the purposes herein fully set forth.

Second, We claim an improved paving or building block, in combination with our improved cement, made in the manner and for the purposes herein fully set forth.

Third, We claim the manner of preparing the said composition or cement in the proportions and of the materials used, as particularly set forth in the specifications.

38,834.—Spring Bed.—Warren P. Miller, Marysville, Cal.:

I claim the combination of the upper guide bars, d', and connecting standards, e, with the lower guides, d, independent rods, q, caps, f, and springs, h, the latter being confined between the upper and lower guides, and all arranged and operating in the manner and for the purposes specified.

[In this invention a uniform and durable elasticity is imparted to the entire surface of the bed-bottom by the use of independent spring rods working in guide bars so arranged as to preserve the rods in vertical positions, and protect the springs from crushing.]

38,835.—Safety Paper.—Joseph Prosper Olier, Paris, France:

I claim, as an improved article of manufacture, a paper composed of three layers of differing thicknesses, of which the central layer is or may be colored with a delible or easily-removable color, and the external layers are or may be charged with silicate of magnesia or other mineral or vegetable matter, all made in the manner herein shown and described.

38,836.—Inkstand.—F. E. Oliver, New York City:

I claim, first, The combination with an ink reservoir of otherwise ordinary construction and provided with the usual dipping cup, of a flexible diaphragm valve capable of assuming and retaining a convex or concave form for withdrawing the ink from or forcing it into the dipping cup, substantially as herein set forth.

Second, Forming the diaphragm valve, for operation hereinbefore referred to, of a concavo-convex vulcanized india-rubber disk, in combination with a center knob, substantially in the manner and for the purposes herein set forth.

38,837.—Sewing Machine.—Aaron Palmer, Brockport, N. Y.:

I claim, first, A horizontal screw having a countersink for the eye end of the needle, in combination with the feeding and crimping wheels, when constructed and arranged substantially as described, so that the horizontal screw is, in itself, both an adjusting screw and holder for the eye end of the needle.

Second, I claim, in combination with a feed wheel and crimping wheel, the movable frame in which the mandrels of the lower feed wheel and corrugating wheel are sustained, and the set screw, substantially as described, and for the purpose of simultaneously adjusting both the corrugating wheels and feed wheel, substantially as described.

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38,838.—Cooking Stove.—Moses Pond, Boston, Mass. :

I claim the combination and arrangement of the shouldered ledges or rests, R R, with the ash chamber, C, the same being for the purpose specified.

I also claim the combination of the deflector, L, with the smoke flue, G, and the hot-air receiving and discharging passages, I K, arranged with respect to the oven, as hereinbefore specified.

38,839.—Evaporating Pan for Sorghum Juice, &c.—N. Z. Potter, Uniontown, Ill. :

I claim giving to the bottoms of the several divisions of a sugar pan a lateral inclination alternately in opposite directions, substantially as and for the purpose shown and described.

[This invention consists in giving to the bottoms of the several divisions of a sugar pan a lateral inclination, alternately in opposite direction, in such a manner that the juice or sirup in the pan readily runs from one division to the other, and the necessity of pushing the same or the danger of scorching it is avoided.]

38,840.—Seed Drill.—Edward F. Rate, Woodbridge, Iowa. Ante-dated Jan. 11, 1862 :

I claim, first, constructing a seed drill with the toothed wheels, n, operating in the manner described and for the purpose specified.

Second, Combining the toothed wheels, n, drills, f, cam, t, and guides, s, substantially in the manner described, by which the wheels and the drills may be raised from the ground, and the seed cut off by a single shifting of the handle.

38,841.—Hydrant.—Joshua Regester, Baltimore, Md. :

I claim, first, Combining in one and the same tube or tail stock, C C′ C″, the two cocks, E E′, arranged and operating substantially as herein described.

Second, Making the axes of the two cocks, when combined in one tail, stock or tube, in the same plane, and conducting the water through C, and around the "street-supply" cock, substantially as herein described.

Third, Combining with and supporting the street and house-supply cocks within a metallic casing, constructed substantially as herein described.

Fourth, The combination of the key rod, G, tubular key rod, F, bearings, a a′, and supply cocks, E E, substantially as and for the purposes set forth.

38,842.—Ornamental Chain, &c.—Egbert S. Richards, Attleborough, Mass. :

I claim the improved method of making links for guard chains, eardrops, breast pins or other similar articles of ornament described, consisting of the use of a skeleton frame of metal, within which the glass or other material composing the body of the ornament is contained, and by which it is held in place, substantially as specified.

38,843.—Gate Hinge.—William W. Robinson, Ripon, Wis. :

I claim the lever hinge, h, constructed and operated in the manner herein set forth.

38,844.—Grain Separator.—Joachim and Detlef Schildhauer, New Holstein, Wis.

I claim the screens, F, and screens, G, placed in the box, D, and the sliding box, H, arranged in relation with the screen box, D, substantially as shown, in combination with the inclined screen, Q, placed in the box, P, the latter communicating with the fan case, K, and all arranged for joint operation as and for the purpose herein specified.

[The object of this invention is to obtain a machine of simple construction which will effectually separate foreign substances from grain, and also separate one kind of grain from another, as, for instance, oats from wheat.]

38,845.—Portable Shield for Infantry or Artillery.—Milton Saviers, Shawneetown, Kansas. Ante-dated Jan. 25, 1863 :

I claim the adjustable head guard, M, constructed as described, and applied to the portable shield, K, in the manner and for the purposes shown and explained.

38,846.—Lamp.—John H. Seaman, Brooklyn, N. Y. :

I claim the combination of the air tubes, M N, and chamber, L, with the chamber, E, and fountain, A, substantially in the manner herein shown and described.

I also claim the combination with the above-named parts of the tube, F, valve, H, and socket, G, as shown and described.

38,847.—Composition for coloring and water-proofing Photographs, &c.—William F. Spieler, Philadelphia, Pa. :

I claim the use and application for the purposes of painting and permanently securing and protecting photographs printed on albumenized paper, or its equivalent, by the use of the aforesaid described two compound fluid materials.

38,848.—Fruit-collecting and drying Apparatus.—Samuel N. Thomas, Auburn, N. Y. Ante-dated April 11, 1863 :

I claim the employment or use of the folding frame, A, with adjustable legs, B, in combination with the canvas, C, and conductor, D, constructed and operating as and for the purpose shown and described.

[This invention consists in the employment of a frame provided with hinges, so that it folds up, and furnished with legs capable of being adjusted in a position at right angles to the rails, constituting the sides of the frame, when the implement is to be put in working order; or in a position parallel with said sides, when the implement is not to be used; in combination with a canvas secured to the frame and provided with a conductor leading down to the ground in such a manner that said canvas folds up and opens with the frame, and that the implement, when not used, can be stowed away in a comparatively small space, and that it can easily be carried from place to place and put up in working position whenever desired.]

38,849.—Photograph-holder.—James E. Treat, Boston, Mass. :

I claim confining the ferrotype, photograph, or other picture, in a holder, or album leaf, by means of a stationary flange, f, and a movable flange or flap, d, or their equivalents, substantially as set forth and for the purpose described.

38,850.—Water Elevator.—William B. Wadsworth, Cleveland, Ohio :

I claim the combination of the chair and wheel, substantially as described, with the bucket, F, rod, I, valve, g, and spout, A, substantially as described.

38,851.—Wind Wheel.—William B. Wadsworth, Cleveland, Ohio :

I claim, first, The governor composed of the hub, H′, arms, N N, and rods, M′ M′, weights, M M, springs, X X, chuck, X′, and set screws, Z2, and arms, F, and hooks, S, connecting with standards on the sails, or their equivalents, substantially as described.

Second, The lever, D, and counterbalance, D′, in combination with the rod, R2, when applied to relieve the millhead, T, substantially as and for the purpose described.

Third, The hooks, S, and arms, F, connecting the sails with the governing arrangement, when made substantially as and for the purpose described.

Fourth, The hub, H, arms, I, hooks, L, and pivots, p, in combination with the wind sails and movable brackets, m, substantially as and for the purpose described.

Fifth, The posts, B, wings, b, tube, A, guide screws, d, in combination with shank, o, millhead, T, and wheel shaft, a, substantially as and for the purpose described.

38,852.—Cupboard Latch.—William B. Wadsworth, Cleveland, Ohio :

I claim the latch described, as a new article of manufacture.

38,853.—Sash-fastener.—Gilbert D. Whitmore, Boston, Mass. :

I claim the improved sash-fastener, having its parts arranged and constructed substantially in the manner and so as to operate as described.

38,854.—Apparatus for the Manufacture of Cube Sugar, &c.—William H. Whitmore, Boston, Mass. :

I claim a combination consisting not only of the rotary molding drum or series of molds, and a movable presser-plate, but mechanism for imparting motions to such presser-plate, substantially as and for the purpose hereinbefore described; the said rotary molding drum, when in use, being provided with a plunger or piston to each mold, and with suitable means of operating such piston or plunger.

38,845.—Method of connecting Sections of Steam Boilers.—Charles Whittier, Roxbury, Mass. :

I claim, first, The application of the herein-mentioned metallic thimbles to the connecting of the sections of steam boilers, generators, or radiators, for dispensing with packing, substantially as set forth.

Second, Constructing the interiors of the herein-described metallic thimbles, of square or other suitable form, for the reception of a key of corresponding form by which to turn them, substantially as represented.

38,856.—Water Elevator.—Elias L. Yorks, Honeoye Falls, N. Y. :

I claim, first, The ratchet box, D, consisting of the disk, b, having a laterally bearing frictional surface, the cylindrical flange, d, and the ribs, e e, or equivalent: said ratchet box turning loosely on the shaft, and held by the pawl, K, substantially as herein described.

Second, In combination with the ratchet box thus arranged, I also claim the gear plate, G, having notches, g g, or equivalent, sliding over the ribs, e e, in such a manner as to hold on the shoulders, f f, when turned forward, but to be disengaged therefrom when turned back, substantially as specified.

Third, I also claim, in combination with the gear plate, provided with the concentric inclined teeth, h h, the crank gear, H, having similarly engaging teeth, n n, substantially as and for the purpose herein set forth.

Fourth, In combination with the gear plate, G, and crank gear, H, I also claim the coupling gear, I, arranged and operating substantially as herein specified.

Fifth, I also claim the combination and arrangement of the ratchet box, D, coiled spring, E, or equivalent, gear plate, G, crank gear, H, coupling gear, I, pawl, K, and frictional bearing shoulders, a p, whereby the whole automatic action is produced, substantially as herein set forth.

38,857.—Burial Case.—E. H. Borton (assignor to himself and E. A. Skeele), St. Louis, Mo. :

I claim the employment of paper, in combination with asphaltum varnish, or its equivalent in effect, for lining the interior surfaces of burial cases, substantially as herein described for the purpose set forth.

38,858.—Permutation Lock.—John Connell (assignor to Martin Briggs), Rochester, N. Y. :

I claim the arrangement and combination of the cam, O, on the operating shaft, the bearing, m, and dog, N, of the tumbler, C, and the permutation wheels, M M, whereby the dog is prevented from producing noise or pressure on the edges of the wheels substantially as herein set forth.

I also claim locking the back, K, and cylinder, L, in place when the bolt is reversed or thrown back, by means of the catch, P, passing through the hole, u, arranged and operating substantially as herein set forth.

38,859.—Mechanical Movement for Lamps.—F. B. de Kerevenan (assignor to Joseph H. Bailey and George A. Jones), New York City :

I claim the general arrangement and combination of the mechanism herein described for the purpose of supplying air to the lamps, &c.

38,860.—Safety Pocket.—Samuel French, Boston, Mass., assignor to himself and Sidney Allen, of Newton, Mass. :

I claim the improved flexible arm or bolt-actuator carrier, as made of tubular sections connected by ball-and-socket joints.

I also claim the improved flexible pocket-mouth frame, as made in separate plates or sections hinged together and with some to overlap others, and having contractile bands applied to them, substantially as described, the whole being so as to enable the mouth frame to be readily flexible and capable of being expanded more or less, as specified.

I also claim the combination of the rotary pulley, k, its cams, m m, retractile spring, o, with the catches l l, and their spring, n, arranged in the manner and so as to operate as described.

38,861.—Machine for rossing Bark.—Richard Healy (assignor to himself and Samuel Goldey), Swanton Falls, Vt. :

I claim, first, The fixed concave bed, B, and adjustable concave bed, C, in concave rollers, L L′, arranged to operate substantially as and for the purpose herein set forth.

Second, The cutters, K, provided with concave cutting edges and arranged on the shaft, J, as shown, when said cutters thus formed and arranged are used in connection with the concave beds, B C, and convex feed rollers, L L′, for the purpose specified.

Third, The particular arrangement of the feed rollers, L L′, with the arms, M M′, and driving mechanism, as herein set forth, whereby said rollers may be raised and lowered, and adjusted as circumstances may require, without interfering with the driving mechanism.

Fourth, The combination of the toothed feed rollers, L L′, concave beds, B C, revolving cutters, K, and roller, I, all arranged for joint operation, as and for the purpose herein specified.

[This invention relates to a new and improved machine for stripping tanners' bark of the outer coating, which possesses no tanning properties. This process of cutting or stripping the outer from the inner layer of bark is technically termed "rossing" and it is essential that the work be perfectly done, for if any material quantity of the outer layer of bark be left on the inner one, the process of tanning leather is much prolonged, and the leather, when tanned, has a dark color.]

38,862.—Thrashing Machine.—Minard Harder, George W. Douglass and Hiram Becker, of Cobleskill, N. Y., and David Anthony, of Worcester, N. Y., assignors to Reuben and Minard Harder, of said Cobleskill :

We claim, first, The "concave" suspended upon the arms, b, and having attached to it the air-deflector or guide, d, and the rods, e, and jamb nuts, as and for the purposes herein set forth.

Secondly, The dust-flue, h, constructed and arranged as described.

Thirdly, The rods or bars, p, placed outside of the casing and connected by the sides of the separator by the eyes, r, and hooks, s, passing through the slots, t, in combination with the strips, Z′, and side boards, X′, whereby the separator is moved and guided as herein described.

Fourth, Connecting the bottom to the separator by the hooks, v, eyes, and screws, x, so that the bottom may be easily and readily detached, as herein set forth.

38,863.—Inkstand.—L. E. Hicks (assignor to himself and R. E. Crane), New York City :

I claim, first, The elastic diaphragm, b, resting upon the top of the reservoir and secured by the cover or cap, c, in combination with the elastic tube, d, formed with or attached to said diaphragm and receiving the tube, e, of the bowl, f, whereby said tube and bowl are sustained, but can be raised for drawing air to the reservoir, as set forth.

Second, I claim the flexible tube, g, in combination with the tube, e, and bowl, f, for the purposes set forth.

Third, I claim the air valve, l, applied as shown, in combination with the diaphragm, b, tube, e, and bowl, f, as specified.

Fourth, I claim the forked lever, h, and key, k, in combination with the thimble, i, tubes, d and e, and bowl, f, as and for the purposes set forth.

Fifth, I claim the holes, 9, at the sides of the tube leading to the bowl, to prevent the ink jetting or spurting up in the bowl, the end of said pipe being closed, as set forth.

38,864.—Hand Stamp.—Horace Holt, Brooklyn, N. Y., assignor to W. W. Secombe, New York City :

I clsim the hand stamp herein described and represented, consisting essentially of rollers or reels, s s′, transfer ribbon, O, type box, z, type, t, and cylindrical metallic case or tube, a, the whole combined and arranged in the manner and for the purposes specified.

[The nature of this invention consists in having the transfer ribbon, which passes over the face of the type, attached at its opposite ends to independent rollers or reels, arranged between the type and handle of the instrument in a cylindrical case or tube inclosing the type.]

38,865.—Churn.—E. H. Philo (assignor to himself and Samuel Peters), Half Moon, N. Y. Ante-dated June 2, 1863 :

I claim the arrangement for imparting two distinct, efficient motions to the cream, by means of the reversing cream box, B, when the same is pivoted as described, in combination with the revolving paddle, H, when these are operated substantially in the manner and for the purposes set forth.

38,866.—Hot-air Engine.—S. H. Roper (assignor to Elmer Townsend), Boston, Mass. :

I claim lining the fire-box with fire-brick, or their equivalent upon all sides except the bottom, as set forth.

I also claim the parts or pieces of the fire-box, G and H2, in combination with the exterior casting, A, the space between them being filled with plaster, or its equivalent, for the purpose specified.

I also claim the induction pipes, d2 f2, arranged and operating as described, in combination with the pipe or passage which brings the air from the air pump to the furnace, for the purpose of regulating the intensity of the fire, as set forth.

38,867.—Washing Machine.—G. L. Whitsil, Philadelphia, Pa. :

I claim a washing machine consisting of the frame with the revolving fluted rollers, G, posts, C C, and the vibrating frame carrying the fluted roller, H, when the whole are arranged as described, and adapted by means of the projection, h, and the shoulder formed by the box, B, to a wash tub, substantially as set forth.

38,868.—Paper File.—Wm. L. Woods (assignor to Henrietta Woods), Washington, D. C. :

I claim the combination of the falling lid, I, the outer box, A B C D E, the inner box, F G H, and the perforations, J, as shown and described, for the purpose set forth.

38,869.—Roll for Rolling Metal.—David Reeves, Phenixville, Pa., assignor to the Phenix Iron Company, Philadelphia, Pa. :

I claim a compound roller made of wrought and cast iron, in the manner and for the purpose substantially as herein described.

38,870.—Feed-water Heater for Steam Boilers.—W. W. Martin, Allegheny, Pa. :

I claim locating a feed-water pipe within an external vertical pipe arranged in the furnace space, for the purpose of heating the water that is to supply the steam boilers, substantially in the manner herein described and represented.

38,871.—Label or Tag.—E. W. Dennison, Boston, Mass. :

I claim, as a new article of manufacture, a label or tag composed of paper with an additional thickness of fabric in the form of a washer applied and secured by glue, or other adhesive material on each side of the label or tag around the eye, as and for the purpose specified.

[This invention makes a much stronger label than those commonly made of muslin coated with paper.]

38,872.—Elevating Hay Fork.—E. W. Seymour, Center Lisle, N. Y., and G. W. Gregory, Binghamton, N. Y., assignors to G. W. Gregory, aforesaid :

We claim the peculiar construction and combination of the head, A, handle, C, latch, E, lever spring catch, G, and staple, H, as and for the purpose herein described.

38,873.—Machinery for making Horseshoes.—Barney Mee, Troy, N. Y. :

First, I claim the adjustable bender, g, in combination with the slotted bar, n, and the die, f, substantially as and for the purposes herein described and set forth.

Second, I claim the exchangeable side formers, E E, in combination with the exchangeable die, f, substantially as and for the purposes herein described and set forth.

Third, I claim the employment of an inclined bed or plate, N, which shall receive the shoe from the die rollers by means of the scraper, M, and which shall hold the same by means of the stopper, S″, during the operation of flattening or straightening said shoe, substantially as herein described and set forth.

Fourth, I claim the adjustable die plate or flattener, P, in combination with the cams, R″, and the inclined bed or plate, N, substantially as and for the purposes herein described and set forth.

Fifth, I claim the employment of the movable stopper, S″, in combination with the inclined bed or plate, N, substantially as and for the purpose herein described and set forth.

38,874.—Machine for folding Paper.—John North, Middletown, Conn., assignor through mesne-assignments to Daniel S., George S., Samuel T., John A., and W. H. Appleton, New York City. Ante-dated August 10, 1858 :

I claim, first, placing the sheet direct in register upon the knife to receive its first fold, in the manner and for the purpose hereinabove described.

Second, Folding paper by means of a straight edge or knife and reciprocating rollers.

Third, Hanging the frame, m m, with reciprocating rollers and folding knife, E, attached to move and reciprocate in the arc of a circle.

Fourth, Causing the rollers to rotate and change their motion alternately, for the purpose specified.

Fifth, Cutting off the inset for the "twelve-mo." folding at the same time it is being folded.

RE-ISSUES.

1,491.—Spring Bed.—J. H. Crane, Charlestown, Mass. Patented April 3, 1860 :

I claim the employment of springs formed, arranged and operating as described, in combination with the slats and rails of a spring bed

1,492. (A.)—Harvesting Machine.—W. A. Kirby, Buffalo, N. Y., and D. M. Osborn, Auburn, N. Y., assignees of said W. A. Kirby. Patented July 2, 1861 :

We claim, in combination with an automatic rake in a reaping machine, a hinged reaching post and two connecting rods, operated from one and the same crank, for the purpose of giving said rake its motions, substantially as described.

Also hinging and supporting the rake post on the main frame and inclining it backward, so that the rake will be out of the way of the falling grain when at rest and be raised high enough, as it moves toward the outside divider, to avoid the falling grain, and drop beyond the stalks on the platform, preparatory to sweeping them off, substantially as described.

Also, in combination with an automatic rake, the lever, trigger and clutch arm, substantially as described, so that the driver at his seat may stop or set the rake in motion at his will, or set the trigger so that it will stop the rake after making one operation, as described.

1,493. (B.)—Harvesting Machine.—W. A. Kirby, Buffalo, N. Y., and D. M. Osborn, Auburn, N. Y., assignees of said W. A. Kirby. Patented July 2, 1861 :

We claim, in combination with a rake post on the main frame and the rake-driving shaft supported at one of its ends on a supplemental frame, the two frames having motions independent of each other, the universal joint, k, in the rake shaft, for the purpose and in the manner substantially as described.

1,494. (C.)—Harvesting Machine.—W. A. Kirby, Buffalo, N. Y., and D. M. Osborn, Auburn, N. Y., assignees of said W. A. Kirby. Patented July 2, 1861 :

We claim placing or making a guard or shield upon a supplemental frame or plate, to which the driving wheel is attached, and passing it under and partially around the gearing attached to said wheel to protect it from injury or from being clogged, substantially as described.

1,495. (D.)—Harvesting Machine.—W. A. Kirby, Buffalo, N. Y., and D. M. Osborn, Auburn, N. Y., assignees of said W. A. Kirby. Patented July 2, 1861 :

We claim, first, Driving the reel of a harvesting machine by means of a pulley placed within an endless belt, so as to spread apart the belt, and thus be driven by the friction of the belt on diametrically opposite sides of said pulley, this arrangement admitting of an easy adjustment of the reel, without loosening the belt, substantially as described.

Second, Placing a tightening pulley above the reel pulley, for the purpose of allowing the reel with the reel pulley attached to be raised and lowered to points between the driving pulley and the tightening pulley, without materially affecting the tension of the belt, and thus avoiding the necessity of changing its length, substantially as described.

EXTENSION.

Steering Apparatus.—Jesse Reed, Marshfield, Mass. Patented June 5, 1849 :

I claim the combination of a right and left-threaded screw, on the hand wheel shaft, a a, with two half nuts, d d, arranged, one on each side of said screw, and traversing in guides opposite to each other, as hereinabove set forth; said nuts being connected to the rudder head either by the long arms, o p o p, as in the first described arrangement or as in the second by the slotted arms, a′ a′, and sliding buttons, c′ c′, all arranged and operating substantially as hereinabove set forth.

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# Notes and Queries

B. F., of Ohio.—The yellow scales in the sand which you sent us are mica.

E. H. J., of R. I.—We do not know of any work by Septimus Piesse other than the one mentioned by you. To make tar from pine wood it is essential that the wood should be distilled in a retort.

J. McD., of Ohio.—White lead is a carbonate of lead. It is usually made by exposing thin sheets of lead to the fumes of vinegar. It may also be formed for experimental purposes by adding a solution of carbonate of potash to a solution of the acetate of lead (sugar-of-lead). The precipitate thus obtained is the carbonate of lead.

E. G., of Ill.—Iron may be effectually prevented from rusting by coating it with asphalt varnish, then baking it in an oven, but such an application cannot conveniently be made to the iron-plates of ships, and such large masses of iron. Red lead is a good paint for iron, but it requires to be applied with care in order to render it durable. The first coat should be put on thin, then allowed to dry, and the iron should then receive two subsequent coats.

D. M., of Ohio.—The subscription price for *Silliman's Journal* is $5 per annum. Address Silliman & Dana, proprietors, New Haven, Conn.

J. De Z., of Mo.—Iron patterns may be coated with copper, and oxidation prevented by first cleaning them perfectly, coating them with asphalt, then preparing the surface with plumbago, and afterwards submitting them to the galvanic battery in a trough containing the sulphate of copper in solution. The process would be troublesome and too expensive for you to practice.

**INVARIABLE RULE.**—It is an established rule of this office to stop sending the paper when the time for which it was pre-paid has expired.

## Money Received

At the Scientific American Office, on account of Patent Office business, from Wednesday, June 10, to Wednesday, June 17, 1863:—

C. D. S., of N. Y., $16; J. N. W., of Ill., $25; H. M., of Pa., $25; H. P., of Pa., $25; R. F., of Ind., $15; J. H. M., of Ind., $26; R. B. M., of Ohio $25; M. S., of Cal., $20; N. and N., of Ill., $19; M. and S. of Pa., $16; C. J. Van O., of N. Y., $10; H. and R., of Ohio, $20; J. N. N., of Iowa 20; C. C. W., of Ill., $20; C. N. B., of Pa., $45; S. M. B., of N. Y., $20; P. L. S., of Pa., $20; D. J. O., of Pa., $20; S. S., of Pa., $20; A. W., of England, $45; H. L., of N. Y., $20; J. McC., of N. Y., $15; E. C., of N. Y., $25; W. H. M., of Conn., $25; J. H. C., of Va., $11; L. M., of N. Y., $21; C. R., of Mich $25; B. K., of Mo., $25; W. F. R., of R. I., $16; L. and G., of Pa., $26; B. L. W., of Mass., $16; S. H., of —— $16; C. H. R., of Maine, $16; L. D., of N. Y., $20; J. M., of Ky., $20; D. and T. W., of Cal., $20; A. F. W., of N. Y., $20; L. and H., of Mass., $40; P. and P., of Ill., $20; R. H. L., of Pa., $51; P. R., of N. Y., $125; S. C. C., of Conn., $26; H. E., of N. Y., $25; B. and M., of N. Y., $25; T. F., of N. Y., $15; W. F., of Iowa, $20; E. A., of Conn., $16; J. C., of N. Y. $16; W. F. O., of Mass., $16; J. N. P., of Ind., $10; Z. W., of Cal., $50; S. A. and W. H. P., of N. Y., $25; A. V. R., of N. Y., $50; W. D. G., of Va., $20; C. and F., of Conn., $20; J. H. S., of N. Y., $36; B. L. W., of Mass., $45; J. A. M., of N. Y. $32; H. and J., of Iowa, $20; G. B. McD., of Ky., $20; W. C. H., of Ohio, $45; W. C., of Md., $45; A. B. K., of Canada, $12; S. B. C., of N. Y., $25.

Persons having remitted money to this office will please to examine the above list to see that their initials appear in it, and if they have not received an acknowledgment by mail, and their initials are not to be found in this list, they will please notify us immediately, and inform us the amount, and how it was sent, whether by mail or express.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from Wednesday, June 10, to Wednesday, June 17, 1863:—

H. L., of N. Y.; H. E., of N. Y.; A. B. K., of Canada; J. McC., of N. Y.; W. M. D., of N. Y.; J. H. S., of N. Y.; E. C., of N. Y.; B & M., of N. Y.; S. B. C., of N. Y.; E. C. B., of Cal.; H. P., of Pa.; W. H. M., of Conn.; C. R., of Mich.; L. M., of N. Y.; F. A., Jr., of Mich.; H. M., of Pa.; C. A., of Cal.; B. K., of Mo.; F. & D., of Paris; Z. W., of Cal. (2 cases); R. B. M., of Ohio; J. H. M., of Ind.; S. A. & W. H. P., of N. Y.

## TO OUR READERS.

**RECEIPTS.**—When money is paid at the office for subscr ptions, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a *bona fide* acknowledgment of our reception of their funds.

**PATENT CLAIMS.**—Persons desiring the claim of any invention which has been patented within thirty years, can obtain a copy by addressing a note to this office, stating the name of the patentee and date of patent, when known and inclosing $1 as fee for copying. We can also furnish a sketch of any patented machine issued since 1853, to accompany the claim, on receipt of $2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York

**Models are required to accompany applications for Patents** under the new law, the same as formerly, except on design patents when two good drawings are all that is required to accompany the petition, specification and oath, except the Government fee.

**NEW PAMPHLETS IN GERMAN.**—We have just issued a revised edition of our pamphlet of *Instructions to Inventors*, containing a digest of the fees required under the new Patent Law, &c., printed in the German language, which persons can have gratis upon application at this office. Address MUNN & CO.,
No. 37 Park-row, New York.

## Binding the "Scientific American."

It is important that all works of refer nce should be well bound. The SCIENTIFIC AMERICAN being the only publication in the country which records the doings of the United States Patent Office, it is preserved by a large class of its patrons, lawyers and others, for reference Some complaints have been made that our past mode of binding in cloth is not serviceable, and a wish has been expressed that we woul adopt the style of binding used on the old series, *i. e.*, heavy board sides covered with marble paper, and morocco backs and corners.

Believing that the latter style of binding will better please a large portion of our readers, we shall commence on the expiration of this present volume to bind the sheets sent to us for the purpose in heavy board sides, covered with marble paper and leather backs and corners.

The price of binding in the above style will be 75 cents. We shall be unable hereafter to furnish covers to the trade, but will be happy to receive orders for binding at the publication office, 37 Park Row New York.

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